SCREENING SITE INSPECTION REPORT
FOR
FAIRMONT RAILWAY MOTORS
FAIRMONT, MINNESOTA
U.S. EPA ID: MND096488986
SS ID: NONE
TDD: F05-8710-005
PAN: FMN0200SB

EPA Region 5 Records Ctr.
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937468

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ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

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Prepared by: Connie Galmore Date: 8-3-89
Ronnie Galmore
FIT Team Leader
Ecology and Environment, Inc.

Reviewed by: Kurt Sims Date: 8/3/89
Kurt Sims
FIT Unit Manager
Ecology and Environment, Inc.

Approved by: Jerome D. Oskvarek Date: 8/3/89
Jerome D. Oskvarek
FIT Office Manager
Ecology and Environment, Inc.

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1. INTRODUCTION

Ecology and Environment, Inc., Field Investigation Team (FIT) was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a screening site inspection (SSI) of the Fairmont Railway Motors (FRM) site under contract number 68-01-7347.

The site was evaluated in the form of a preliminary assessment (PA) that was submitted to U.S. EPA. The PA was prepared by Michael Connolly and Becky Lofgren of the Minnesota Pollution Control Agency (MPCA). The PA is dated March 25, 1987 (MPCA 1987).

FIT prepared an SSI work plan for Fairmont Railway Motors site under technical directive document (TDD) F05-8710-005, Project Account Number (PAN) FMN0200SA, issued on October 6, 1987. The SSI work plan was approved by U.S. EPA on October 4, 1988. The SSI of the FRM site was conducted on December 6, 1988, under TDD F05-8710-005, issued on October 28, 1988.

The FIT SSI included an interview with site representatives, a reconnaissance inspection of the site, and the collection of 11 soil and sediment samples and 1 municipal well sample.

The purposes of an SSI have been stated by U.S. EPA in a directive outlining Pre-Remedial Program strategies. The directive states:

> All sites will receive a screening SI to 1) collect additional data beyond the PA to enable a more refined preliminary HRS [Hazard Ranking System] score, 2) establish priorities among sites most likely to qualify for the NPL [National Priorities List], and 3) identify the most critical data requirements for the listing SI step.

> A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA [Resource Conservation and Recovery Act].... Sites that are designated NFRAP or deferred to other statutes are not candidates for a listing SI.
>
> The listing SI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive a listing SI. (U.S. EPA 1988)

U.S. EPA Region V has also instructed FIT to identify sites during the SSI that may require removal action to remediate an immediate human health or environmental threat.

2. SITE BACKGROUND

2.1 INTRODUCTION

This section includes information obtained from SSI work plan preparation and the site representative interview.

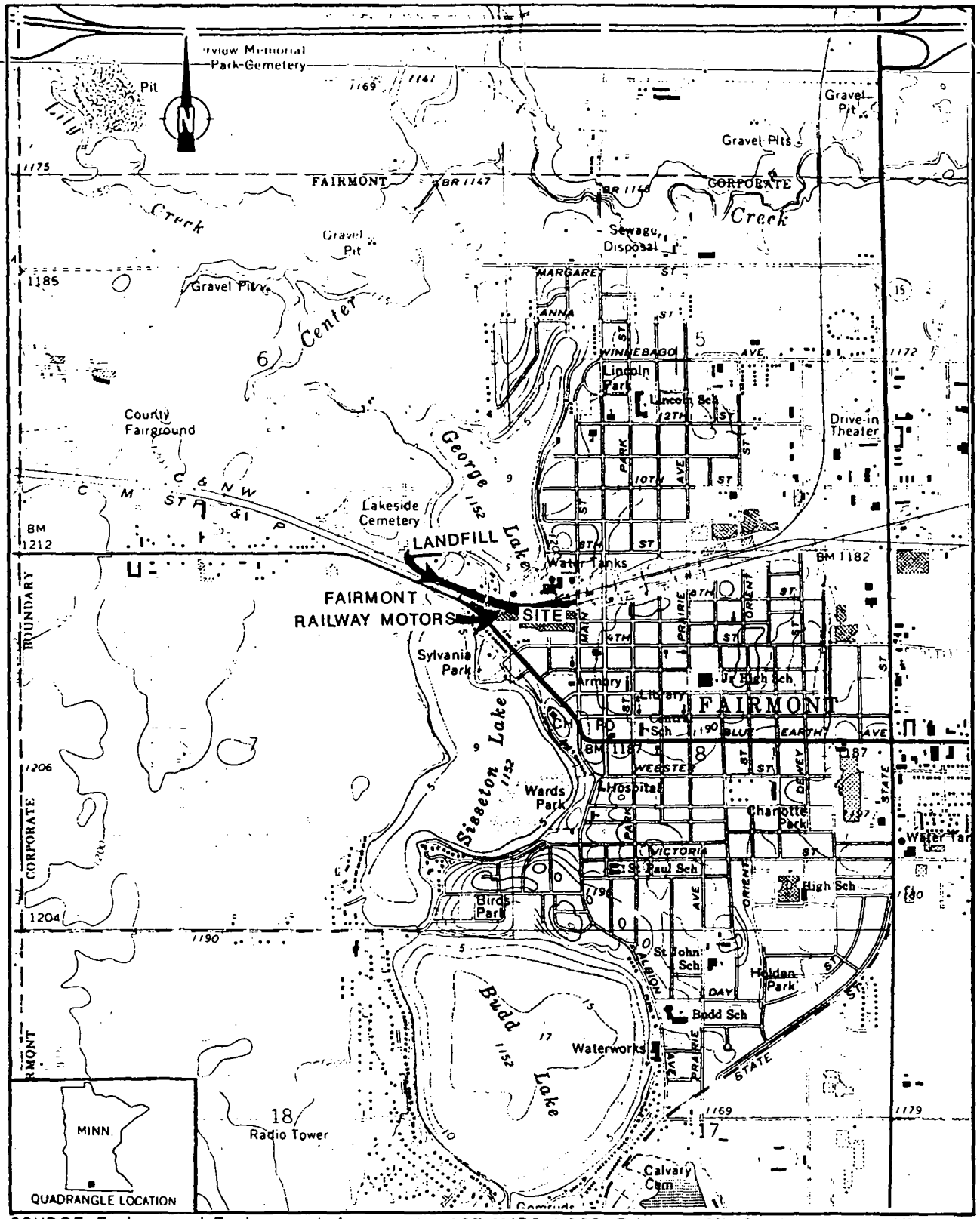
2.2 SITE DESCRIPTION

The FRM site is an active facility where hydraulic hand tools, railway maintenance vehicles, rail grinders, highrails, and equipment that adapts standard road trucks for railway travel are produced. Processes include the casting of aluminum and iron in sand molds. The finished products are fully assembled and leave the facility ready for use (Flanagan 1988).

The site is located on a 20-acre parcel of land in a heavily populated area, approximately 450 feet south of George Lake, within the corporate boundaries of the city of Fairmont, Minnesota (NW1/4NW1/4 sec. 8, T.102N., R.30W.), at 415 North Main Street (see Figure 2-1). A 4-mile radius map of the FRM site is provided in Appendix A.

2.3 SITE HISTORY

The Fairmont Railway Motors facility began operations in 1909 and is currently active. In 1923, the facility was connected to the Fairmont municipal sanitary sewer system. Spent soluble oil and washing solution from the facility were discharged into the sanitary sewer system until 1980, after which these wastes were sold for recycling. The facility does not currently dump any waste into the municipal



SOURCE: Ecology and Environment, Inc., 1989; BASE MAPS: USGS, Fairmont, MN Quadrangle, 7.5 Minute Series, 1967.

SCALE
0 0.5 1 MILE

FIGURE 2-1 SITE LOCATION

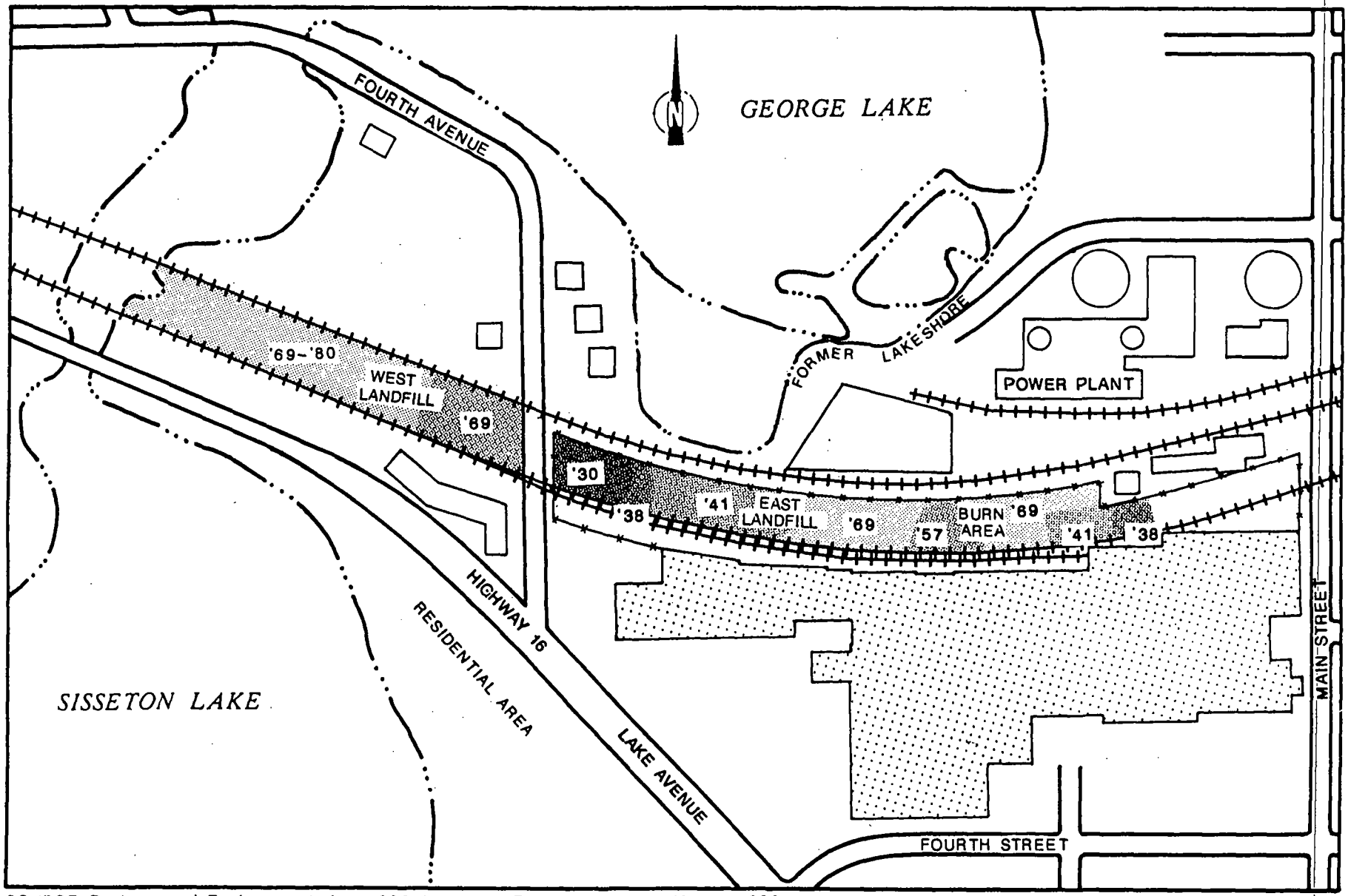
sanitary sewer system that would require a permit from the city of Fairmont, the MPCA, or the U.S. EPA (Flanagan et al. 1988).

In approximately 1930, FRM began disposing of waste on-site in a trench between two railroad tracks ("FRM landfill"). The nature of FRM waste disposal practices prior to 1930 is unknown. Some of the waste that was placed in the trench landfill at the site included paint dust, foundry sand, metals, paint sludges, spent silica sand, and steel shot. In 1941, the FRM landfill was expanded east toward Main Street. Figure 2-2 provides dates for use of various areas of the landfill. In late 1941, FRM began using cyanide in its manufacturing process. A cyanide salt was used in the heating process. Cyanide waste and worn-out metal pots with cyanide waste were disposed of in the FRM landfill. Paint dust, paint filters, and paint solids were burned in the east section of the landfill each week. These paint wastes were burned in the landfill from late 1950 until 1980 (see Figure 2-2 for location of burn area) (Flanagan et al. 1988)

By 1969, the landfill between the railroad tracks east of Fourth Avenue was almost filled. In 1969, FRM expanded its landfill west of Fourth Avenue. This landfill area consisted of a trench between the two railroad tracks extending from Fourth Avenue to a channel that connects Sisseton Lake to George Lake (Flanagan et al. 1988).

According to Robert Flanagan, FRM Quality and Safety Manager, the same types of waste that had been placed in the older landfill sections were placed in this new section of the landfill. In approximately 1980, FRM ceased placing waste in the on-site landfill (Flanagan et al. 1988).

Flanagan has stated that during the time the landfill was active, area residents dumped refuse at the landfill; it is unknown whether other businesses or industries dumped their waste at the FRM landfill. A city of Fairmont storm drain flows under the eastern section of the landfill and empties into George Lake (see Figure 3-1 for outfall location) (Flanagan et al. 1988). The FRM landfill does not drain into the city of Fairmont storm drain. Flanagan has stated that there has never been any problem with leachate or waste migrating from the on-site landfill into George Lake. The landfill does not have a leachate collection system, surface water diversion system, or liner; the depth and type of cover is unknown (Flanagan et al. 1988).



SOURCE: Ecology and Environment, Inc. 1989; based on Fairmont Railway Motors 1988.

SCALE

0 200 400 600 800 1000 FEET

FIGURE 2-2 DATES OF USE OF LANDFILL AREAS

Shaded Areas and Numbers Indicate Approximate Year(s) the Areas Were Used for Landfilling

In 1979, FRM was sold to the Harsco Corporation of Camp Hill, Pennsylvania. FRM, now a division of Harsco Corporation, continues to use the site to manufacture hydraulic hand tools, railway maintenance vehicles, rail grinders, highrails, and equipment that adapts standard road trucks for railway travel (Flanagan et al. 1988).

Bruce K. Anthony, Larry Christensen, and Dave Cera of MPCA visited the FRM site on July 10, 1980. As a result of this inspection, MPCA determined that 1) some of the waste being placed in the FRM landfill may have contained hazardous components; 2) the disposal of cutting and grinding oil to the sewer system may have been inappropriate; and 3) any cyanide waste generated at the site should be considered hazardous and disposed of in an MPCA-approved manner (Moore 1980). In 1986, after discovering hazardous substances at the Gofer Sanitary Landfill, MPCA requested a summary of all hazardous substances deposited at Gofer Sanitary Landfill by FRM (Svanda 1986). Gofer Sanitary Landfill is approximately 10 miles north of the site. Wastes suspected of being deposited at Gofer Sanitary Landfill by FRM include cyanide waste, paint sludges, spent soluble oil, and metals. To the best of its knowledge, FRM did not dispose of any hazardous waste at the Gofer Sanitary Landfill (Jackson 1986). MPCA does not have any regulatory or enforcement action currently pending against FRM.

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI of the FRM site. Individual subsections address the site representative interview, reconnaissance inspection, and sampling procedures. Rationales for specific FIT activities are also provided. The SSI was conducted in accordance with the U.S. EPA-approved work plan, except for the number of sediment samples and residential well samples. After the reconnaissance inspection, FIT determined that two of the sediment samples could be deleted. FIT was unable to locate any residential wells close to the FRM site, so no residential wells were sampled.

The U.S. EPA Potential Hazardous Waste Site Inspection Report (Form 2070-13) for the FRM site is provided in Appendix B.

3.2 SITE REPRESENTATIVE INTERVIEW

Ronnie Galmore, FIT team leader, conducted an interview with FRM representatives Robert J. Flanagan, Quality and Safety Manager; Raymond R. Lund, Vice President--Operations; Richard Lobb, Project Engineer; and Eric P. Carman, Project Hydrogeologist of Geraghty and Miller, Inc. Eric Carman was present at the request of FRM to split samples with FIT. The interview was conducted on December 5, 1988, at 2:15 p.m. in the office of Robert J. Flanagan on-site. Also present at the interview was Kurt Sims of FIT. The interview was conducted to gather information that would aid FIT in conducting SSI activities.

3.3 RECONNAISSANCE INSPECTION

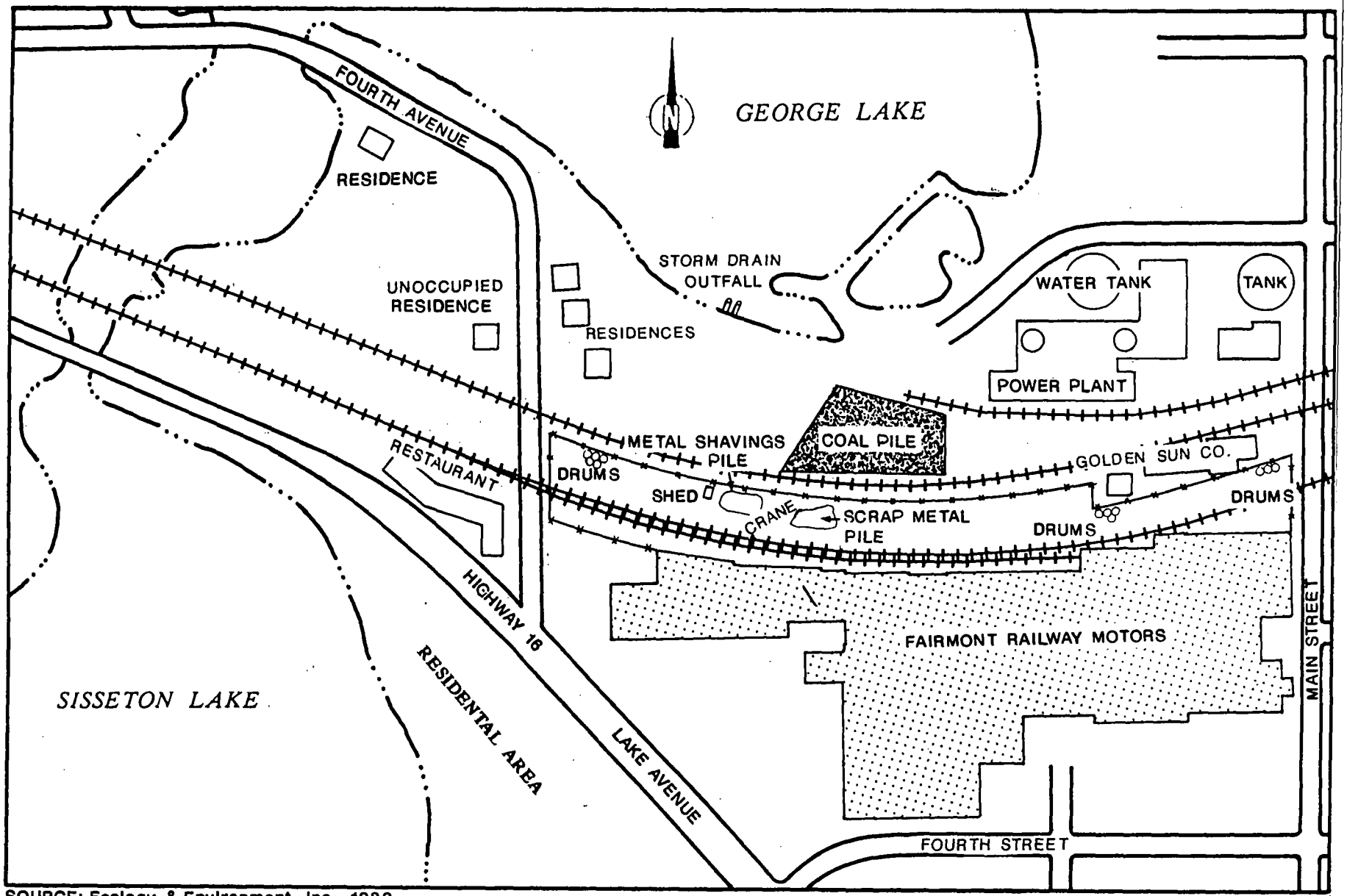
On December 6, 1988, FIT conducted a reconnaissance inspection of the FRM site and surrounding area in accordance with Ecology and Environment, Inc. (E & E), health and safety guidelines. The reconnaissance inspection included a walk-through of the site to determine appropriate health and safety requirements for conducting on-site activities and to make observations to aid in characterizing the site. FIT also determined exact sampling locations during the reconnaissance inspection.

The reconnaissance inspection began at approximately 9:00 a.m. Richard Lobb accompanied FIT during the reconnaissance inspection. Lobb has been employed by FRM for 25 years.

Reconnaissance Inspection Observations. The FRM site is located in a largely residential area of Fairmont, Minnesota (see Figure 3-1 for locations of site features). Commercial businesses are also found in the vicinity of the site. FRM owns approximately 20 acres of land and four buildings: the main plant and office building, and three warehouses. The warehouses are located directly across from the main plant on Main Street. The FRM landfill is located north of the plant/office building between two railroad tracks (see Figure 3-2 for site boundaries). The landfill covers approximately 5 acres and is divided into an eastern section ("east landfill") and a western section ("west landfill") by Fourth Avenue. Photographs of the FRM site are provided in Appendix C.

The site property is bordered to the north by railroad tracks, a power plant with a coal pile, a water tower adjacent to the Golden Sun Company, Fourth Avenue, and a residential area. The FRM site is bordered to the south by Fourth Street, a residential area, a restaurant, another business, Sisseton Lake, and Highway 16--Lake Avenue.

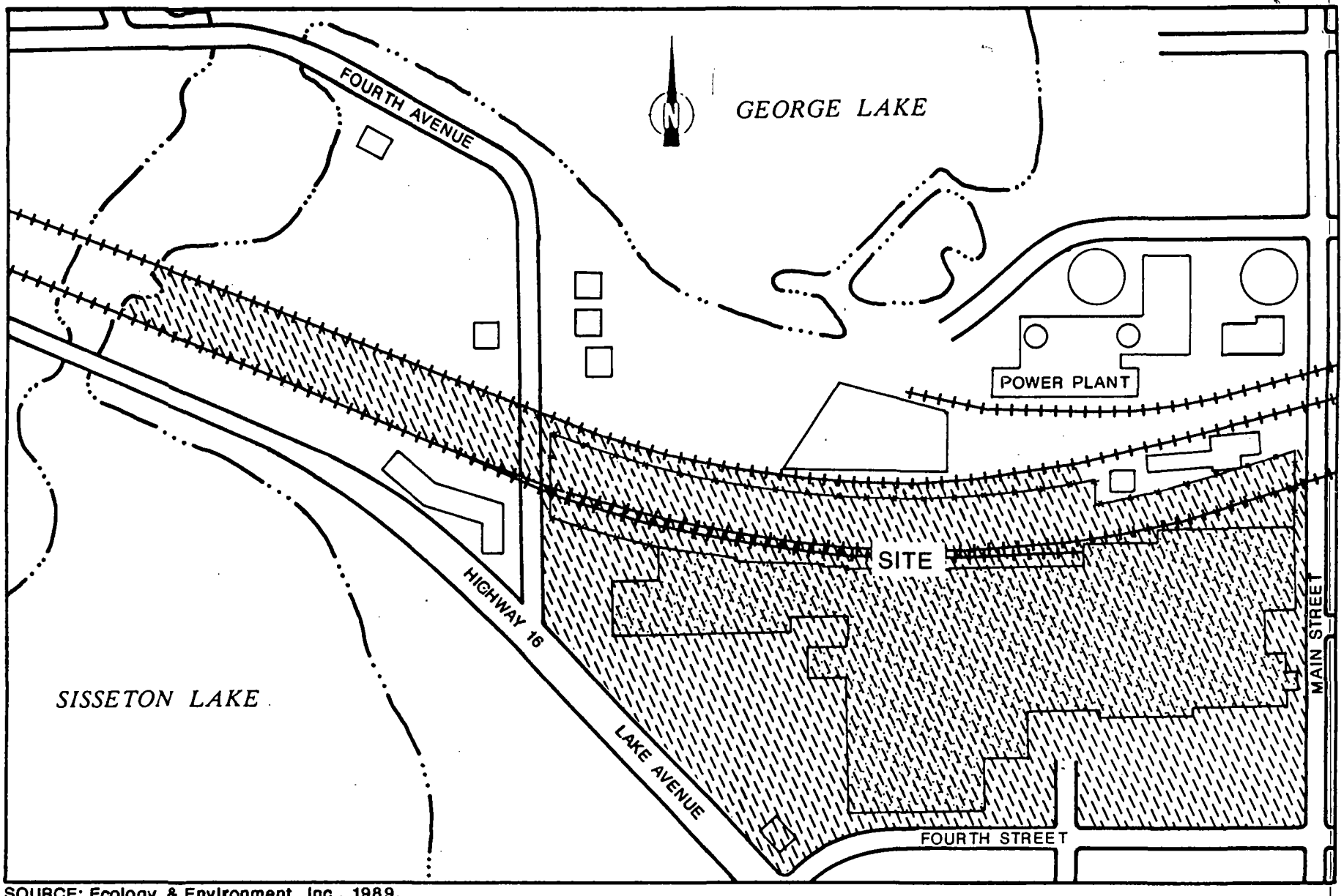
The west landfill is unfenced. The westernmost edge of the west landfill slopes 35% to 40% into the channel between Sisseton Lake and George Lake. The channel is approximately 25 feet in width and lies approximately 450 feet west of Fourth Avenue. A restaurant is located south of the east end of the west landfill at the intersection of Fourth



SOURCE: Ecology & Environment, Inc., 1989.

SCALE
0 200 400 600 800 1000 FEET

FIGURE 3-1 SITE FEATURES



SOURCE: Ecology & Environment, Inc., 1989.

SCALE
0 200 400 600 800 1000 FEET

FIGURE 3-2 SITE BOUNDARIES

Avenue and Highway 16--Lake Avenue. Northwest of the FRM plant building, FIT observed several houses. Lobb stated that the residences west of Fourth Avenue were unoccupied. FIT also observed several snowmobile tracks on-site on the unfenced west landfill area of the site. The landfill has plant growth and was partially covered with snow at the time of the reconnaissance inspection. No signs of leachate or stressed vegetation were observed on-site.

Both sections of the landfill are located on a small embankment between two sets of railroad tracks. The embankment is approximately 20 to 25 feet high. The north and south faces of the embankment containing the west landfill outside of the railroad tracks slope approximately 20 to 25%. The fill area is located about 2 feet lower than the railroad tracks. The land on the east landfill outside of the railroad tracks slopes approximately 25 to 30% on its north face. The south face of the east landfill outside of the railroad tracks slopes approximately 20 to 25% on its western portion. The remaining portion of the east landfill outside of the railroad tracks has no slope on its southern face. North of the fenced area of the east landfill, the ground is approximately 2 feet lower than the surface of the fenced area. There is then a rise of approximately 2 1/2 feet to the northern set of railroad tracks.

The east landfill is fenced, with the fence beginning at the northwestern corner of the main building and ending at the building's northeast corner. Within the fenced area, FIT observed several scrap metal piles, machine metal piles, 55-gallon drums, an old crane, and a shed with a calcium carbide sign. The scrap metal piles remain on-site until they fill one railroad boxcar and then the scrap is sold to Pooley Scrap Metal and Iron, Inc., Fairmont, Minnesota, for recycling (Flanagan 1988). Some of the drums carried labels reading "Flammable," "denatured alcohol," and "Kerosene." Other drums were unlabeled and were resting on the ground. A city of Fairmont storm drain flows under the east landfill and into George Lake, which is located approximately 450 feet north of the landfill. FIT observed two storm drain outfalls flowing into George Lake. There are several occupied homes on the east side of Fourth Avenue, north of the landfill. The railroad tracks north of the landfill are 30 feet from the fence and belong to the Chicago and Northwestern Railroad Company (Flanagan 1988). The east landfill is

covered by sand and gravel. Some exposed soil and a concrete pad were observed along the main plant/office building.

Still bottom waste from the FRM site is transported by SET Environmental of Chicago to LWD, Inc., of Colvert City, Kentucky, for solvent recovery (Flanagan et al. 1988). The FRM facility operates 24 hours a day, employs 450 workers, and has a 24-hour security guard on duty (Flanagan et al. 1988).

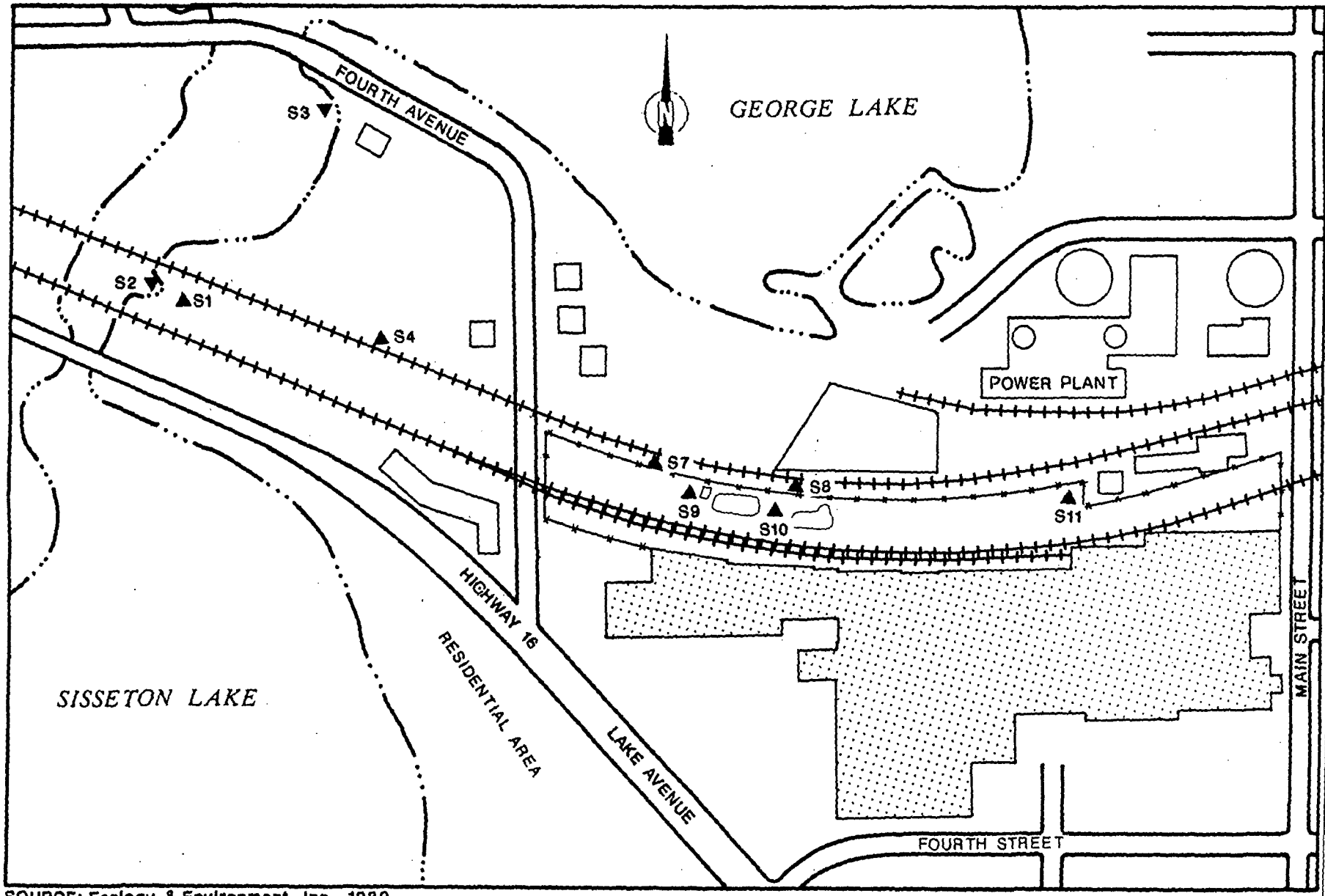
3.4 SAMPLING PROCEDURES

Samples were collected by FIT at locations determined during the reconnaissance inspection to determine levels of U.S. EPA Target Compound List (TCL) compounds and U.S. EPA Target Analyte List (TAL) analytes present at the site. The TCL and TAL, with corresponding quantitation/detection limits are provided in Appendix D.

On December 6, 1988, FIT collected eight surface soil samples, including one potential background soil sample, and three lake sediment samples, including one potential background sediment sample. Also on December 6, 1988. FIT collected a sample from one municipal well. A portion of each soil and sediment sample, except the potential background soil and sediment samples was taken by a site representative.

Soil and Sediment Sampling Procedures. Soil and sediment samples (indicated as S1 through S11) were obtained from various locations throughout the site. Surface soil sample S1 was collected at the western edge of the west landfill about 20 feet from the slope that leads to the channel between Sisseton Lake and George Lake (see Figure 3-3 for on-site soil and sediment sampling locations). Soil sample S1 was collected to determine whether TCL compounds or TAL analytes had been deposited in the west landfill.

Sediment sample S2 was collected from the channel between Sisseton Lake and George Lake, between two railroad trestles. Water in the channel was frozen to a depth of about 4 inches. FIT used a steel rod to chip a hole in the ice and a bucket hand auger to collect the sediment sample. The flow between the lakes is from the south to the north (from Sisseton Lake to George Lake). Sediment sample S3 was collected from the waterway between Sisseton Lake and George Lake, about 10 feet from the shoreline. A steel rod was used to chip a hole in the



SOURCE: Ecology & Environment, Inc., 1989.

FIGURE 3-3 ON-SITE SOIL AND SEDIMENT SAMPLING LOCATIONS

ice and a bucket hand auger was used to collect the sediment sample. Sample S3 was collected as a downgradient sediment sample. Sediment samples S2 and S3 were collected to determine whether any TCL compounds and/or TAL analytes had migrated from the site to the lakes.

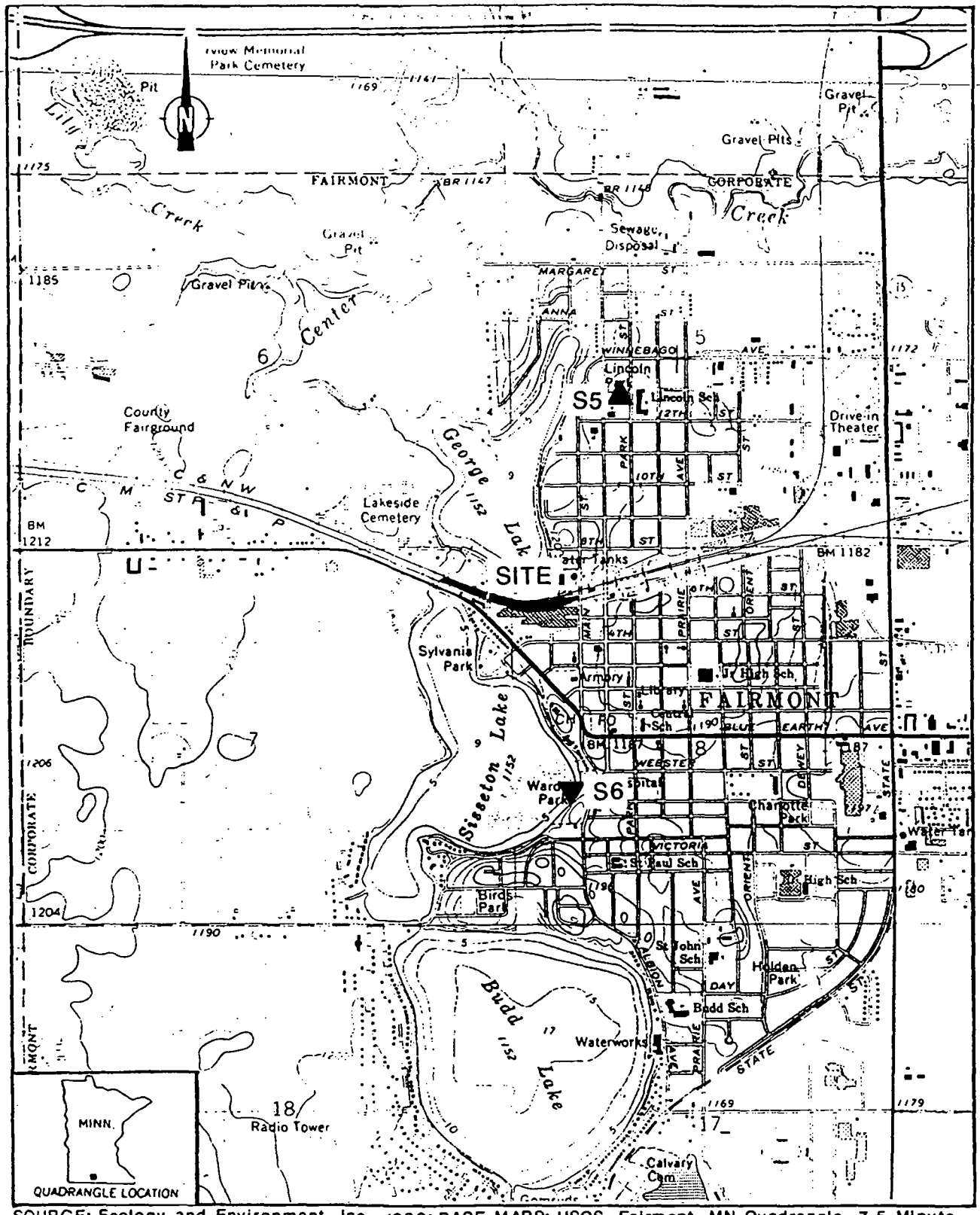
Surface soil sample S4 was collected at the base of a 30% slope on the north side of the west landfill. The location of soil sample S4 was chosen to determine whether TCL compounds and/or TAL analytes had been deposited there.

A potential background soil sample (indicated as S5) was collected at Lincoln Park, approximately 3/4 mile north of the site (see Figure 3-4 for off-site soil and sediment sampling locations). The background soil sample was collected to determine the representative chemical content of the soil in the area surrounding the site. This location was chosen because the ground surface appeared to be in an undisturbed state.

Sediment sample S6 was collected upstream from the site as a potential background sediment sample. Sample S6 was collected approximately 7 feet from shore and 60 feet north of a fishing pier at Wards Park on Sisseton Lake.

Soil sample S7 was collected at the west end of the east landfill, outside the fenced area, near some drums that were within the fenced area. This location was chosen because the terrain outside the fenced area was lower and runoff may have collected there. Soil sample S8 was collected from the east landfill outside of the fenced area, near a scrap metal pile. This location was chosen because of the lower terrain and to determine whether TCL compounds and/or TAL analytes had been deposited there.

Samples S9, S10, and S11 were collected within the fenced area of the east landfill. Soil sample S9 was collected approximately 15 feet west of the calcium shed. Soil sample S10 was collected between the scrap metal pile and the metal shaving pile, approximately 10 feet south of the north fence. Soil sample S9 and S10 were collected to determine whether TCL compounds and TAL analytes had been deposited there. Soil sample S11 was collected near the east end of the fenced area, near a small metal pile, approximately 25 feet from the north fence. This



SOURCE: Ecology and Environment, Inc., 1989; BASE MAPS: USGS, Fairmont, MN Quadrangle, 7.5 Minute Series, 1967.

SCALE
0 0.5 1 MILE

LEGEND
▼ SEDIMENT SAMPLE ▲ SOIL SAMPLE

FIGURE 3-4 OFF-SITE SOIL AND SEDIMENT SAMPLING LOCATIONS

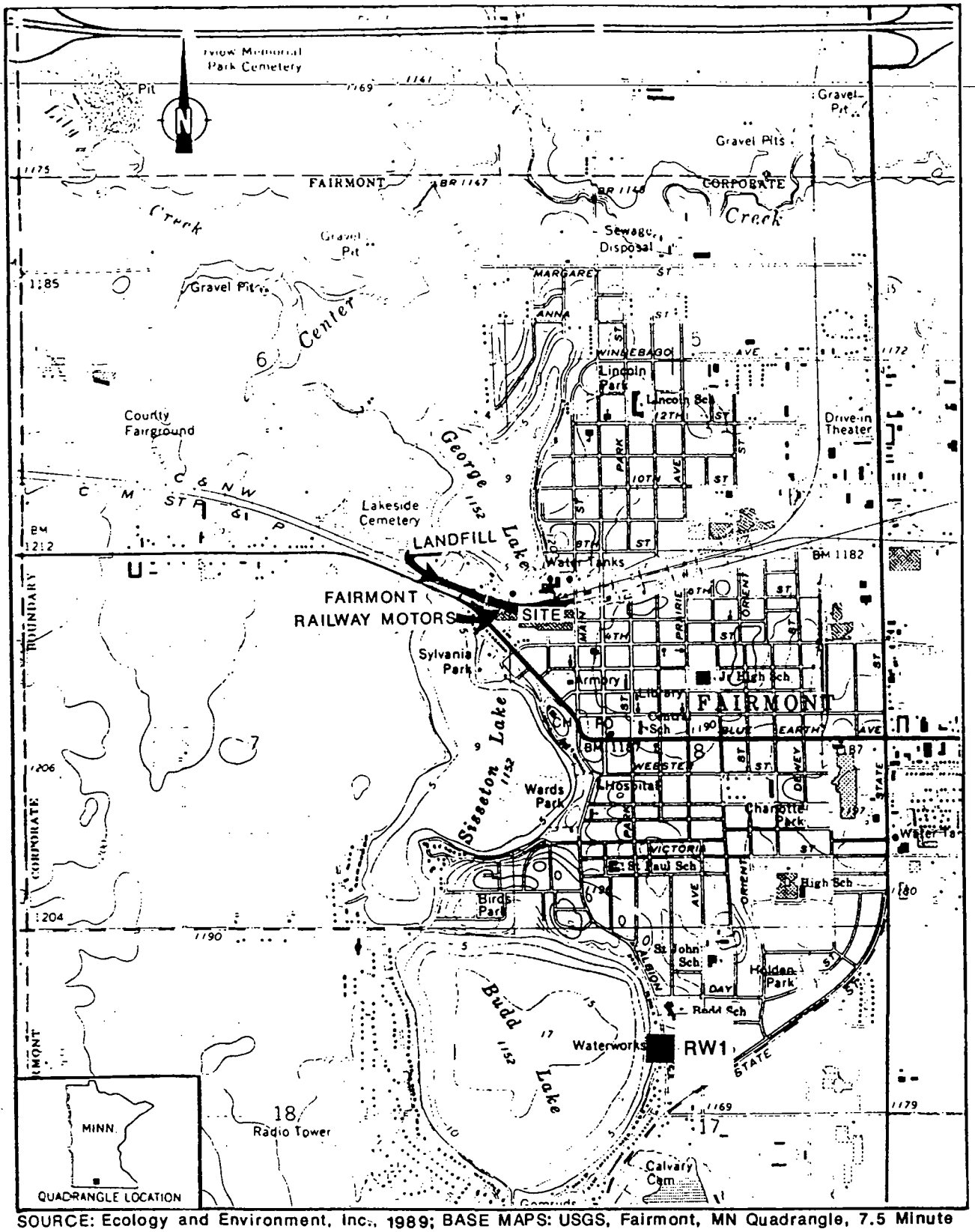
location was chosen because of nearby drums and because the ground surface was lower at this point.

Standard E & E decontamination procedures were adhered to during the collection of all soil and sediment samples. The procedures included the scrubbing of all equipment with a solution of Alconox and distilled water, and triple-rinsing the equipment (e.g., trowels, bowls, bucket hand auger, and spoons) with distilled water before the soil and sediment samples were collected. All soil samples were collected from a depth of 6 inches using a metal garden hand trowel. All sediment samples were collected from a depth of approximately 6 inches using a metal bucket hand auger. The samples were then transferred to a stainless steel bowl using the trowel or hand auger. Samples were mixed in the bowl and then placed in sample bottles using a spoon (E & E 1987). All soil and sediment samples were packaged and shipped in accordance with U.S. EPA-required procedures.

As directed by U.S. EPA, all soil and sediment samples were analyzed under the Contract Laboratory Program (CLP) for TCL compounds by S-Cubed, of San Diego, California, and for TAL analytes by Enseco/ Rocky Mountain Analytical, of Arvada, Colorado.

Municipal Well Sampling Procedures. One municipal well sample (indicated as RW1 and duplicate RW2) was collected to determine whether TCL compounds and/or TAL analytes had migrated from the site via groundwater in the aquifer of concern (see Figure 3-5 for municipal well sampling locations). A well log for this well is provided in Appendix E.

The municipal well sampling location was chosen because it is the only municipal groundwater well in use in Fairmont, and to determine the general characteristics of groundwater in the area. Sample RW1 was collected at the Fairmont municipal well, located approximately 1 1/2 miles south of the site. According to the well log, the depth of the well is approximately 305 feet. A duplicate municipal well sample (identified as RW2) was collected in accordance with U.S. EPA quality assurance/quality control (QA/QC) requirements. The duplicate sample was collected at location RW1. See Table 3-1 for the address of the municipal well sampling location. A blank municipal well sample was prepared, using distilled water, in accordance with U.S. EPA protocols.



SOURCE: Ecology and Environment, Inc., 1989; BASE MAPS: USGS, Fairmont, MN Quadrangle, 7.5 Minute Series, 1967.

SCALE
0 0.5 1 MILE

FIGURE 3-5 MUNICIPAL WELL SAMPLING LOCATION

Table 3-1

ADDRESS OF MUNICIPAL WELL SAMPLING LOCATION

Sample	Well Depth	Address
RW1 & RW2	305 feet	1022 Albion Avenue Fairmont, Minnesota

Source: Ecology and Environment, Inc. 1989; based on Miller 1988 and well log.

The municipal well sample was obtained from an outlet that bypassed water treatment systems and/or storage tanks. The water was allowed to discharge from the outlets for approximately 15 minutes before samples were collected to insure that sample sources had been purged of standing water. The municipal well sample was packaged and shipped in accordance with U.S. EPA-required procedures.

As directed by U.S. EPA, municipal wells samples were analyzed under the CLP for TCL compounds by Versar, Inc., of Springfield, Virginia, and for TAL analytes by Skinner and Sherman, Inc., of Waltham, Massachusetts.

4. ANALYTICAL RESULTS

4.1 INTRODUCTION

This section includes results of chemical analysis of FIT-collected soil and sediment samples and municipal well samples for TCL compounds and TAL analytes.

4.2 RESULTS OF CHEMICAL ANALYSIS OF FIT-COLLECTED SAMPLES

Soil and Sediment Sample Results. Chemical analysis of FIT-collected soil and sediment samples revealed substances from the following groups of TCL compounds and TAL analytes: phenols, phthalates, pesticides, polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), aromatics, heavy metals, other inorganic analytes, common laboratory artifacts, and common soil constituents (see Table 4-1 for complete soil and sediment sample chemical analysis results).

Municipal Well Sample Results. Analysis of FIT-collected municipal well samples revealed substances from the following groups of TCL compounds and TAL analytes: heavy metals, common groundwater constituents, and common laboratory artifacts (see Table 4-2 for complete municipal well sample chemical analysis results).

U.S. EPA quantitation/detection limits used in the analysis of soil and sediment, and municipal well samples are provided in Appendix D.

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED SOIL AND SEDIMENT SAMPLES

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
Date	12/6/88	12/6/88	12/6/88	12/6/88	12/6/88	12/6/88	12/6/88	12/6/88	12/6/88	12/6/88	12/6/88
Time	1030	1100	1200	1330	1305	1330	1415	1445	1440	1515	1530
CLP Organic Traffic Report Number	ECU53	ECU54	ECU55	ECU56	ECU57	ECU58	ECU59	ECU60	ECU61	ECU62	ECU63
CLP Inorganic Traffic Report Number	MECM66	MECM67	MECM68	MECM69	MECM70	MECM71	MECM72	MECM73	MECM74	MECM75	MECM76
Compound Detected (values in µg/kg)											
Volatile Organics											
toluene	7	--	--	--	--	--	4J	--	--	4J	--
Semivolatile Organics											
4-methylphenol	--	--	230J	--	--	--	--	--	--	--	--
naphthalene	--	--	440J	--	--	--	--	--	--	--	--
2-methylnaphthalene	--	--	160J	--	--	--	--	76J	--	--	110J
acenaphthylene	--	--	180J	--	--	--	--	--	--	--	260J
acenaphthene	--	--	200J	--	--	180J	--	--	--	--	180J
dibenzofuran	--	--	160J	--	--	--	--	--	--	--	81J
fluorene	--	--	280J	--	--	180J	--	--	--	--	150J
phenanthrene	73J	--	1,600	120J	--	1,200	550J	230J	170J	190J	1,500
anthracene	--	--	--	--	--	340J	150J	--	--	--	540J
fluoranthene	--	--	2,300	250J	99J	1,700	970	280J	270J	250J	4,200
pyrene	--	--	2,000	240J	79J	1,400	790	230J	230J	300J	4,300
benzo[a]anthracene	--	--	1,000J	180J	--	680J	430J	120J	--	180J	3,000
chrysene	180J	--	1,500	400J	--	910	510J	220J	160J	240J	3,100
bis(2-ethylhexyl)phthalate	200J	220J	840J	150J	--	640J	150J	1,300	140J	380J	290J
benzo[b]fluoranthene	140J	--	2,400	880	--	850	870	190J	260J	280J	7,200
benzo[k]fluoranthene	--	--	--	--	--	470J	--	130J	120J	--	--
benzo[a]pyrene	160J	210J	1,300	380J	--	680J	540J	120J	140J	230J	3,600
indeno[1,2,3-cd]pyrene	--	--	910J	450J	--	290J	250J	84J	--	--	1,700
dibenzo[a,h]anthracene	--	--	470J	--	--	--	160J	--	--	--	940
benzo[g,h,i]perylene	280J	--	1,100J	700J	--	310J	360J	110J	160J	60J	1,900J
Pesticides/PCBs											
4,4'-DDE	--	--	--	--	--	36	13J	--	--	--	--
Aroclor 1254	--	--	--	220	--	--	--	85J	--	--	--
Analyte Detected (values in mg/kg)											
aluminum	3,770J*	7,240J*	5,480J*	3,610J*	8,600J*	2,870J*	5,910J*	4,270J*	5,840J*	3,560J*	4,610J*
arsenic	5.8	4.8	6.4	3.4	7.4	3.8	17.5	3.0	7.1	1.5B	4.9
barium	25.7B	136	129	40.2B	135	69.1	132	41.9B	110	158	114
beryllium	--	.38B	--	--	.54B	--	.52B	--	.41B	--	.45B
cadmium	--	1.2JB	1.9JB	3.8	1.2JB	1.9J	1.4J	--	--	1.3J	--

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
calcium	16,600J*	31,600J*	26,700J*	3,220J*	12,100J*	32,900J*	24,500J*	5,000J*	42,000J*	2,740J*	65,400J*
chromium	15.5	13.2	13.4	36.3	15.5	7.6	23.5	17	18.6	27.8	10
cobalt	1.4B	6.2B	6.3B	3.2B	8.2B	3.5B	5.7B	2.4B	6.0B	2.5B	4.2B
copper	107	31.4	113	348	16.8	33	69.4	316	50.6	539	24.9
iron	13,400	14,300	14,600	18,400	16,800	8,330	16,100	9,520	15,400	11,300	10,400
lead	6.1	18	107J*	175J*	35.7J*	88.3J*	130J*	59J*	77.2J*	117J*	49.6J*
magnesium	2,560	7,970	6,610	540B	5,250	6,080	7,220	2,480	9,080	1,360	15,800
manganese	153	429	399	302	938	259	642	250	603	275	860
mercury	--	--	.2	--	--	.5	--	--	--	--	--
nickel	12	17.7	19.5	15.5	24.7	10.8B	15.9	10.8	17.1	9.8	11.8
potassium	339B	1,100B	957B	410B	1,470	492B	1,150B	423B	799B	223B	1,460
selenium	--	1.8	1.4JWB	.63JWB	2.2	--	--	--	--	--	.59JWB
sodium	--	--	--	--	--	469B	--	--	--	254B	--
vanadium	3.5B	25.6	26.7	11.4B	32.6	12.4B	23.3	8.7B	24.6	4.5B	17.3
zinc	10.2JE*	70.2JE*	289JE*	104JE*	69.4JE*	152JE*	183JE*	137JE*	96.6JE*	100JE*	74.3JE*

-- Not detected.

Table 4-1 (Cont.)

COMPOUND QUALIFIER	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
E	Estimated or not reported due to interference. See laboratory narrative.	Analyte or element was not detected, or value may be semiquantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be quantitative or semiquantitative.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.

Source: Ecology and Environment, Inc. 1989.

Table 4-2
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED MUNICIPAL WELL SAMPLE

Sample Collection Information and Parameters	Sample Number RW1	Duplicate	Blank
Date	12/6/88	12/6/88	12/6/88
Time	1430	1430	-
CLP Organic Traffic Report Number	ECU65	ECU66	ECU70
CLP Inorganic Traffic Report Number	MECM78	MECM79	MECM83
Temperature (°C)	3	3	-
Specific Conductivity (μmhos/cm)	500	500	-
pH	7.7	7.7	-
Compound Detected (values in μg/L)			
Volatile Organics			
methylene chloride	.11J	--	.12J
acetone	--	--	4.1
chloroform	--	--	.12
toluene	--	.14JX	.38J
Acrolein	--	--	6.92
Analyte Detected (values in μg/L)			
aluminum	34.1JB	30.1JB	--
barium	56.2J	56.2J	--
calcium	56,700	57,100	115B
copper	11J	6.2JB	--
iron	66.9JB	56.3JB	--
magnesium	36,700	37,200	84JB
manganese	26.9J	28.4J	3.7JB
potassium	3,120	3,150	--
sodium	11,900	12,100	--
vanadium	3.9JB	4.0JB	--

-- Not detected.

Table 4-2 (Cont.)

COMPOUND QUALIFIERS	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.
X	Cannot be confirmed by CLP protocols.	Compound may or may not be present.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
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5. DISCUSSION OF MIGRATION PATHWAYS

5.1 INTRODUCTION

This section discusses data and information that apply to potential migration pathways and targets of TCL compounds and/or TAL analytes that may be attributable to the FRM site.

The five migration pathways of concern discussed are groundwater, surface water, air, fire and explosion, and direct contact.

5.2 GROUNDWATER

TCL compounds and TAL analytes were detected in groundwater approximately 1 1/4 miles from the site. Because this was the only groundwater sampling location available and because of the distance of the sampling point from the site, FIT cannot attribute the TCL compounds and TAL analytes found in the well sample to the site. The TCL compounds and TAL analytes found in the municipal well sample were heavy metals, common laboratory artifacts, and common groundwater constituents.

A potential exists for TCL compounds and/or TAL analytes from the site to migrate to groundwater in the area, based on the following information.

- The site is possibly lined with foundry sand (Flanagan et al. 1988).

- TCL compounds (Anderson 1985) and TAL analytes (Beckert 1981) associated with foundry sand were detected in on-site soil samples.

- The compounds and analytes detected in on-site soil samples either were not detected in the background sample or were detected in on-site samples at higher concentrations than in the background sample. Therefore, the compounds and analytes listed above are attributable to the FRM site.

- The site does not have a leachate collection system (Flanagan et al. 1988).

A review of the geology of the area of the site indicates that the bedrock in the area is the Dakota Formation, Mesozoic Era, Cretaceous Period (Sims 1972). The depth to bedrock ranges from 104 to 190 feet. The glacial deposits immediately overlying the Dakota Formation are described as outwash deposits related to the stagnation and retreat of the Des Moines lobe (Sims 1972). A review of well logs from the vicinity of the site indicates that these glacial outwash deposits overlying the bedrock are composed of clay, sand, and gravel. The aquifer of concern, located at a depth of approximately 150 feet, is found within the sandstone bedrock. The majority of the private drinking water wells located within a 3-mile radius of the site are cased into the sandstone bedrock. However, one well log from within the 3-mile radius indicates that the well draws from a gravel aquifer at 110 feet (well logs are provided in Appendix E). It is assumed that the drift and bedrock aquifers are hydrologically interconnected, because well logs indicate that no continuous clay layers are present within a 3-mile radius of the site. The drift and bedrock aquifers will be considered as one aquifer of concern. The direction of regional groundwater flow in the bedrock aquifer is to the south (Bloomgrem 1989); however, local groundwater flow in the drift is to the north (Kanivetski 1979).

The city of Fairmont operates one municipal well, located approximately 1 1/4 miles south of the site. The city of Fairmont supplies municipal water to 11,507 persons living within its corporate boundaries (Miller 1988). The city of Fairmont does not supply municipal water to persons living outside the city's corporate

boundaries (Miller 1988), and these residents rely on residential wells for water supplies. According to a house count on a U.S. Geological Survey (USGS) topographic map of the area of the site, multiplied by an average number of persons per household of 2.60 (derived from 1980 Census data), approximately 224 persons reside within a 3-mile radius of the site outside the corporate limits of the city of Fairmont.

The total potential target population for groundwater contamination is 11,731 persons.

5.3 SURFACE WATER

TCL compounds and TAL analytes were detected in sediment samples obtained from the channel and waterway between Sisseton Lake and George Lake, and may be attributed to the FRM site, based on the following information:

- TCL compounds and TAL analytes detected in on-site soil samples were also detected in sediment samples;
- The landfill may have extended to the edge of the slope that leads to the channel and waterway; and
- The surface water flow in the waterway is south to north.

A potential exists for contaminants to migrate off-site via surface water, based on the following information:

- TCL compounds and TAL analytes have been detected in on-site soil samples;
- There are no surface water diversion structures present at the site;
- The steep slopes of the landfill may be routes for surface water runoff; and

- City of Fairmont storm sewers flow under the east landfill and empty into George Lake (Flanagan et al. 1988). FIT noticed two storm drains discharging into George Lake.

According to USGS topographic maps (Fairmont and Wilmert Lake quadrangles), Budd Lake, Sisseton Lake, and George Lake are part of a chain of lakes within a 4-mile radius of the site. The lake most likely to be impacted by the FRM site is the downgradient George Lake. Surface water in the area flows from south to the north, discharging to Center Creek. Center Creek flows out of George Lake.

The potential targets of surface water contamination include approximately 11,507 persons within the corporate boundaries of Fairmont who are on municipal water, some which is drawn from Budd Lake. Budd Lake is part of the chain of lakes, and is upgradient from the site. There is a low potential for Budd Lake to become contaminated from the FRM site. The potential is low because Budd Lake is upgradient of the site. Surface water from Budd Lake and groundwater from the Fairmont municipal well are blended before distribution. The city of Fairmont operates two surface water intakes located in Budd Lake, one approximately 120 feet from shore and the other approximately 240 feet from shore (Miller 1988). Budd Lake is located 1 mile south of the site. The chain of lakes is used for fishing, boating, and swimming (Miller 1988).

5.4 AIR

A release of potential contaminants to the air was not documented during the SSI of the FRM site. During the reconnaissance inspection, FIT site-entry instruments (OVA 128, explosimeter, oxygen meter, hydrogen cyanide monitor, and radiation monitor) did not detect levels above background concentrations of the site (E & E 1987). In accordance with the U.S. EPA-approved work plan, further air monitoring was not conducted by FIT.

A potential exists for windblown particulates to carry TCL compounds and TAL analytes from the site. This potential is based on the following information:

- TCL compounds and TAL analytes were detected in on-site soil samples;

- The area around the site is sandy, and the potential exists for particulates to be easily blown into the air; and

- The depth and type of cover material on the landfill are unknown.

The potential targets of air contamination include approximately 11,884 persons living within a 4-mile radius of the FRM site (calculated using the methodology described in Section 5.2).

5.5 FIRE AND EXPLOSION

During the FIT reconnaissance inspection, no evidence of fire or explosive conditions was observed. FIT explosimeter readings indicated no apparent potential for explosions at the site.

Burning practices formerly employed at the site could have potentially posed a fire and/or explosion hazard to the surrounding area. In 1980, the FRM facility ceased burning operations at the site (Jackson 1986). In the mid-1970s, an explosion occurred in the FRM foundry when a worker dropped a tool box in a hot process pot (Flanagan et al. 1988).

5.6 DIRECT CONTACT

According to federal, state, and local file information reviewed by FIT, and interviews with local officials, there is no documentation of an incident of direct contact with TCL compounds and/or TAL analytes at the FRM site.

A potential exists for the public and/or workers at the site to come into direct contact with TCL compounds and/or TAL analytes detected at the site. The potential for direct contact is based on the following information:

- Residents disposed of garbage at the on-site landfill when it was active (Flanagan 1988a);

- The west landfill is unfenced and accessible;

- Snowmobile tracks were observed on the west landfill by FIT;

- The type of cover material on the landfill and the depth of the cover are unknown; and

- TCL compounds and TAL analytes have been detected in on-site soils.

Direct contact may occur through casual use of the unfenced area. The potential target population for direct contact within a 1-mile radius of the site is approximately 8,487 persons. This estimate was obtained using the USGS map of the Fairmont, Minnesota, 1979 Quadrangle. Planimeter readings were used to calculate the portion of the population of Fairmont within the 1-mile radius.

6. BIBLIOGRAPHY

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Compound Detected (values in μg/L)			
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acetone	--	--	4.1
chloroform	--	--	.12
toluene	--	.14JX	.38J
Acrolein	--	--	6.92
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- TCL compounds and TAL analytes were detected in on-site soil samples;

- The area around the site is sandy, and the potential exists for particulates to be easily blown into the air; and

- The depth and type of cover material on the landfill are unknown.

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- The west landfill is unfenced and accessible;
- Snowmobile tracks were observed on the west landfill by FIT;
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APPENDIX A

SITE 4-MILE RADIUS MAP

APPENDIX B

U.S. EPA FORM 2070-13

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D096488986

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Fairmont Railway Motors	415 N. Main St.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Fairmont	MN	56031	Martin	091	02

09 COORDINATES LATITUDE	LONGITUDE
43 39 22.0	094 27 47.0

10 TYPE OF OWNERSHIP (Check one)
■ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION (MONTH DAY YEAR)	02 SITE STATUS	03 YEARS OF OPERATION
12, 6, 88	■ ACTIVE ☐ INACTIVE	1909 (BEGINNING YEAR) / Present (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ■ B. EPA CONTRACTOR Ecology & Environment, Inc. (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Ronnie Galmore	Environmental Technician	Ecology & Environment, Inc.	(312) 663-9415

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Kurt Sims	Earth Scientist	"	( ) "
Melanie NesterenKo	Biologist	"	( ) "
Dan Sullivan	Chemical Engineer	"	( ) "
Stan Senger	Water Resource Manager	"	( ) "
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Robert J. Flanagan	Quality and Safety Manager	415 North Main Street	(non-[redacted]
Raymond R. Lund	Vice-President Operations	"	(507) 235 3361
Richard Lobb	Project Engineer	"	(507) 235 3361
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	8:30	Sunny 30°-40°F SW Wind 10-15 mph

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Ron Swenson	MPCA	612 297-1793

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Ronnie Galmore	U.S. EPA	Ecology & Environment, Inc	(312) 663-9415	4, 7, 89 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D096488986

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ■ A SOLID
- ■ B POWDER, FINES
- ■ C SLUDGE
- □ D OTHER _____ (Specify)
- □ E SLURRY
- ■ F LIQUID
- □ G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

- TONS: Unknown
- CUBIC YARDS: _____
- NO. OF DRUMS: _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ■ A TOXIC
- ■ B CORROSIVE
- □ C RADIOACTIVE
- ■ D PERSISTENT
- □ E SOLUBLE
- □ F. INFECTIOUS
- □ G. FLAMMABLE
- □ H IGNITABLE
- □ I HIGHLY VOLATILE
- □ J EXPLOSIVE
- □ K REACTIVE
- □ L INCOMPATIBLE
- □ M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	Unknown - Pam	Sludges	The MPCA made the Following suggestions:
OLW	OILY WASTE			the disposal of soluble oils into the
SOL	SOLVENTS			sewer may be inappropiate, cyanide
PSD	PESTICIDES			is considered hazardous and should be
OOC	OTHER ORGANIC CHEMICALS			disposed of in a MPCA approved
IOC	INORGANIC CHEMICALS			manner; and paint waste is hazardous
ACD	ACIDS			under the MPCA hazardous waste rules
BAS	BASES			and landfill disposal may be inappropiate.
MES	HEAVY METALS	Unknown -	Foundy Sand	

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	See Section III of SI				
	Report and Data Package.				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Sample data, Case # 11040
Site Inspection by FIT / Ecology & Environment, Inc. 12/6/88

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: MN | 02 SITE NUMBER: D096488986

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION
02 ☐ OBSERVED (DATE: 12-6-88) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 11731
04 NARRATIVE DESCRIPTION: The general geology of the area consists of clay, sand, gravel, and sandstone. contaminats have been detected in the soil. The depth to groundwater in the area is approximately 20 feet. Contaminants detected in on-site soil sample could potential migrate to the groundwater.

01 ■ B. SURFACE WATER CONTAMINATION
02 ■ OBSERVED (DATE: 12-6-88) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 11507
04 NARRATIVE DESCRIPTION: George Lake is the nearest surface water body, located approximately 500 feet north of the site. Samples take from a channel that is connected to George Lake shows contamination with TCL compounds and ~~TAL~~ analytes, these compounds and analytes were also detected in onsite soil samples.

01 ■ C. CONTAMINATION OF AIR
02 ☐ OBSERVED (DATE:) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 11884
04 NARRATIVE DESCRIPTION:
a potential does exist for TCL compounds and TAL analytes to be carried in windblown particulates due to the detection of these compounds in on site soil samples.

01 ■ D. FIRE/EXPLOSIVE CONDITIONS
02 ☐ OBSERVED (DATE:) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED:
04 NARRATIVE DESCRIPTION:
No potential was observed durning the FIT SSI.

01 ■ E. DIRECT CONTACT
02 ☐ OBSERVED (DATE:) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 8487
04 NARRATIVE DESCRIPTION: The west landFill is unfenced. During the SSI snowmobile tracks were noticed on the west landFill. The east landFill is fenced. TCL compounds and TAL analytes were detected in on-site soil samples taken from unfenced west landfill.

01 ■ F. CONTAMINATION OF SOIL
02 ■ OBSERVED (DATE: 12-6-88) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: ~5 (Acres)
04 NARRATIVE DESCRIPTION:
FIT sampling confirmed contamination of on-site soil with TCL compounds and TAL analytes. The compounds and analytes include PAH's, Phthalate, Phenol, aromatics, Heavy Metals, a pesticide, and a PCB's.

01 ■ G. DRINKING WATER CONTAMINATION
02 ☐ OBSERVED (DATE: 12-6-88) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 11731
04 NARRATIVE DESCRIPTION: The municipal well sampled, is up gradient from the site and any contamination may not be attributable to the site. TCL compounds and TAL analytes detected in the soil and sediment sample could potentially contaminate goundwater and surface water surrounding the site, which are used for drinking water.

01 ■ H. WORKER EXPOSURE/INJURY
02 ☐ OBSERVED (DATE:) ■ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 450
04 NARRATIVE DESCRIPTION:
There is a potential for worker exposure/injury because soil samples taken onsite show contamination with TCL compounds and TAL analytes.

01 ■ I. POPULATION EXPOSURE/INJURY
02 ☐ OBSERVED (DATE:) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ~11731
04 NARRATIVE DESCRIPTION:
See Section 'A', 'B', 'C', 'D', 'E', and 'H', above.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D096488986

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ■ J. DAMAGE TO FLORA 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Damage to flora could potentially occur through contact with contaminated soil and potentially contaminate air and water resources. There was no evidence of damage to flora on-site.

01 ■ K. DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
Damage to fauna could potentially occur through contact with contaminated soil/sediment. See 'F', 'J', and 'L'.

01 ☐ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION Contaminants could potentially affect the food crop through windblown contaminated soil and if humans were to consume the upland game which had come in contact with contaminated surface materials. see J, K

01 ■ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) 02 ☐ OBSERVED (DATE: 12-6-88) ■ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 11884 04 NARRATIVE DESCRIPTION There is documented contamination of onsite soil and sediment. The site is does not have a liner and the depth of the cover is unknown.

01 ■ N. DAMAGE TO OFFSITE PROPERTY 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION Windblown contaminated particulates may affect off site properties. Damage to offsite properties could occur through contaminant migration via surface water or groundwater routes. TCL compounds and TAL analytes have been detected in soil/sediment samples.

01 ■ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ☐ OBSERVED (DATE: _____) ■ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION Two storm drains flow under the landfill and into George Lake. MPCA in 1980 suggest that dumping solubile oil into the sanitary sewer may be inappropriate. Soil samples collected on site are contaminant. If the storm drain become contaminated they could potential contaminated Lake George.

01 ■ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ■ ALLEGED
04 NARRATIVE DESCRIPTION During the time the landfill was in operation other persons damped their refuse at the landfill, according to mr. R. Flanagan the Safety Manager for Fairmont Railway Motors.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
There are several scrap metal and metal shaving piles located within the fenced area of the site, In the mid 70's a worker was injuried when he accidentally dropped a tool box in a hot pot.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 11884

IV. COMMENTS
The site is a active facility that manufactures hydraulic handtools and railroad equipment. The site operated two landfill from the early 1930's until 1980, The site is located 500 feet south of George Lake.

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)
State and FIT files. Region V
SSI conducted on 12-6-88

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D096488986

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
■ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
■ B. PILES	unknown	
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
■ F. LANDFILL	5	Acres
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ■ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

■ A. BUILDINGS ON SITE

1

06 AREA OF SITE

5 (Acres)

07 COMMENTS The Fairmont Railway Motors private landfill was open about 1930 and closed approximately 1980. The landfill is located between two railroad tracks. The area between the tracks was an open trench that was filled in with waste from Fairmont Railway Motors, the waste included paint sludges, paint filters, foundry sand, metals, and cyanide waste.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ■ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

The landfills does not have leachate collection system, surface water diversion system or liner, and the depth and type of cover is unKown.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ■ YES ☐ NO

02 COMMENTS The west landfill is unfenced. Snowmobile track were notice on site by FIT.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

SSI conducted on 12-6-88
State and FIT file information.
Region II

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D096488986

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ■
NON-COMMUNITY	C. ☐	D. ■

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ■
D. ☐	E. ☐	F.

03 DISTANCE TO SITE

A. 1/4 (mi)
B. 1/2 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ■ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER ~11731

03 DISTANCE TO NEAREST DRINKING WATER WELL 1 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
~20 (ft)	North east in the drift South in the bedrock	20 (ft)	Unknown (gpd)	☐ YES ■ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

Mostly everyone within the corporate boundaries of Fairmont is serviced by their municipal water system. The city of Fairmont operates one groundwater well, The well draw from clay, sandstone, and shale. The depth of the wells range from 100 feet to 305 Feet.

10 RECHARGE AREA		11 DISCHARGE AREA	
■ YES ☐ NO	COMMENTS: Recharge Directly by seepage through Precipitation	☐ YES ☐ NO	COMMENTS: unknown

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

■ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
George Lake	☐	500' Feet (mi)
Sisseton Lake	☐	1200' Feet (mi)
Budd Lake	☐	1 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 8487 NO. OF PERSONS	B. 11152 NO. OF PERSONS	C. 1115 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

125 Feet (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

4289

04 DISTANCE TO NEAREST OFF-SITE BUILDING

75 feet (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Fairmont Railway Motors is located within the corporate boundries of Fairmont. The population around the site is located in a urban area and is densely populated.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D096488986

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ■ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ■ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
104 - 190 (ft)	UnKnown (ft)	UnKnown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
-6 (in)	2.5 (in)	30 %	North	≃7 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

NO

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. N/A (mi)	B. 2.5 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

N/A (mi)

ENDANGERED SPECIES: none listed

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. adjacent (mi)	B. 125 Ft (mi)	C. NA (mi)	D. < 3 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

See Appendix 'A'

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Climatic Atlas of the United States
USGS topographic map of Fairmont, MN. Quadrangle 1979
SSI/FIT 12-6-88
State File Information.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D096488986

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	1	TCL Compounds: S-Cubed, San Diego, California TAL Analytes: Ensco / Rocky Mountain Analytical Labs Arvado, Colorado	Available
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL / Sediment	11	TCL Compounds: Versar, Inc Springfield, Virginia TAL Analytes: Skinner and Sherman, Inc. Waltham, Massachusetts	Available
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Combination OXYGEN METER/EXPLOSIMETER	No readings above background
OVA - 128	No readings above background
Monitox	No readings above background
Radiation Mini-Alert	No readings above background
Drager Pump	No color change

IV. PHOTOGRAPHS AND MAPS

01 TYPE ■ GROUND ■ AERIAL

02 IN CUSTODY OF Ecology & Environment, Inc., Chicago (Name of organization or individual)

03 MAPS ■ YES ☐ NO

04 LOCATION OF MAPS Ecology & Environment, Inc., Chicago

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Temperature, Conductive, and PH For Residential Well.

T.° 3°c

Cond. 500

PH. 7.7

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology & Environment, Inc. File Information REGION V

SSI conducted December 6, 1988

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION
01 STATE: MN | 02 SITE NUMBER: D096488986

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Harsco Corp.		P.O. Box 8888		Camp Hill	PA	17011

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Fairmont Railway Motors		415 N. Main St.	3546-2 3531-9	Fairmont	MN	56031

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

SSI conducted on December 5, 1988

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION
01 STATE: MN | 02 SITE NUMBER: D096488986

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Harsco Corp.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
P.O. Box 8888	

05 CITY	06 STATE	07 ZIP CODE
Camp Hill	PA	17011

08 YEARS OF OPERATION	09 NAME OF OWNER
9	Harsco Corp

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
Fairmont Railway Motors	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
415 N. Main St.	3546-2 3531-9

05 CITY	06 STATE	07 ZIP CODE
Fairmont	MN	56031

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
70	Fairmont Railway Motors

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

SSI conducted on 12-5-88

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D096488986

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Fairmont Railway Motors	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
415 N. Main St.	3546-2 3531-9

05 CITY	06 STATE	07 ZIP CODE
Fairmont		56031

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
SET Environment			

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
8770 S. 78th Ave			

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Bridgeview	IL	60455			

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

SSI conducted on 12-5-88

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MN	D096488986

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE: MN | 02 SITE NUMBER: D096488986

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION: N/A

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

State File Information
SSI conducted on 12-5-88

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MN	D096488986

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ■ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

In 1980 the MPCA visited Fairmont Railway Motors and made the following suggested that solubile oils disposed to the sewer may be inappropriate, cyanide is considered hazardous and should be disposed of in a MPCA approved manner, and all paint waste should be consider hazardous and landfill disposal may be inappropriate.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

State File Information and FIT File Region V
SSI 12-5-88
FIT

EPA FORM 2070-13 (7-81)

APPENDIX C

FIT SITE PHOTOGRAPHS

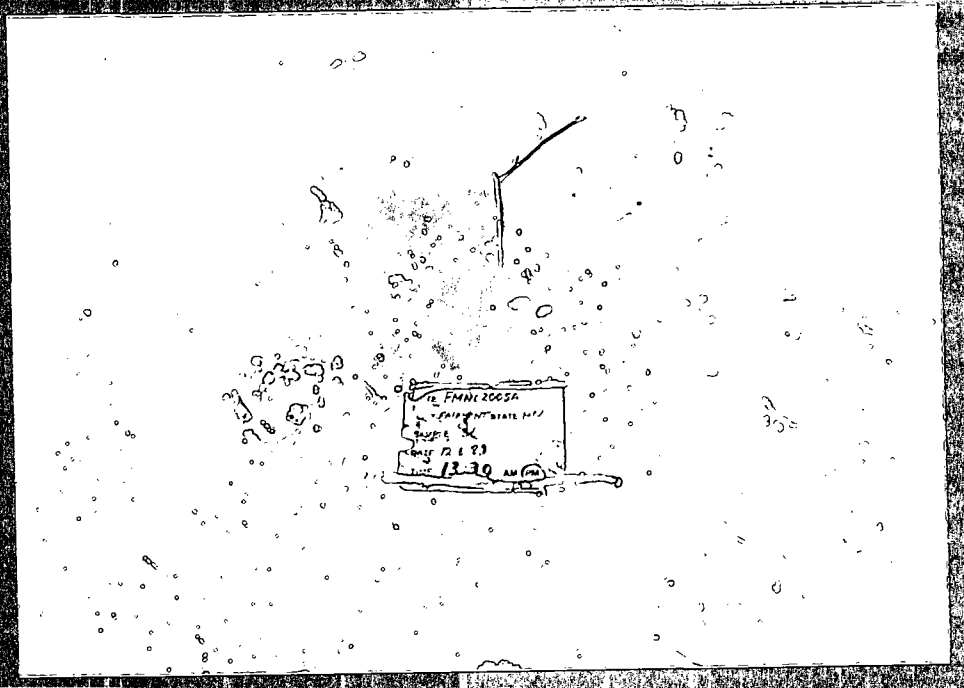

SITE FMN040005A
CITY FAIRMONT STATE MN
SAMPLE SI
DATE 12 6 88
TIME 1030
AM PM

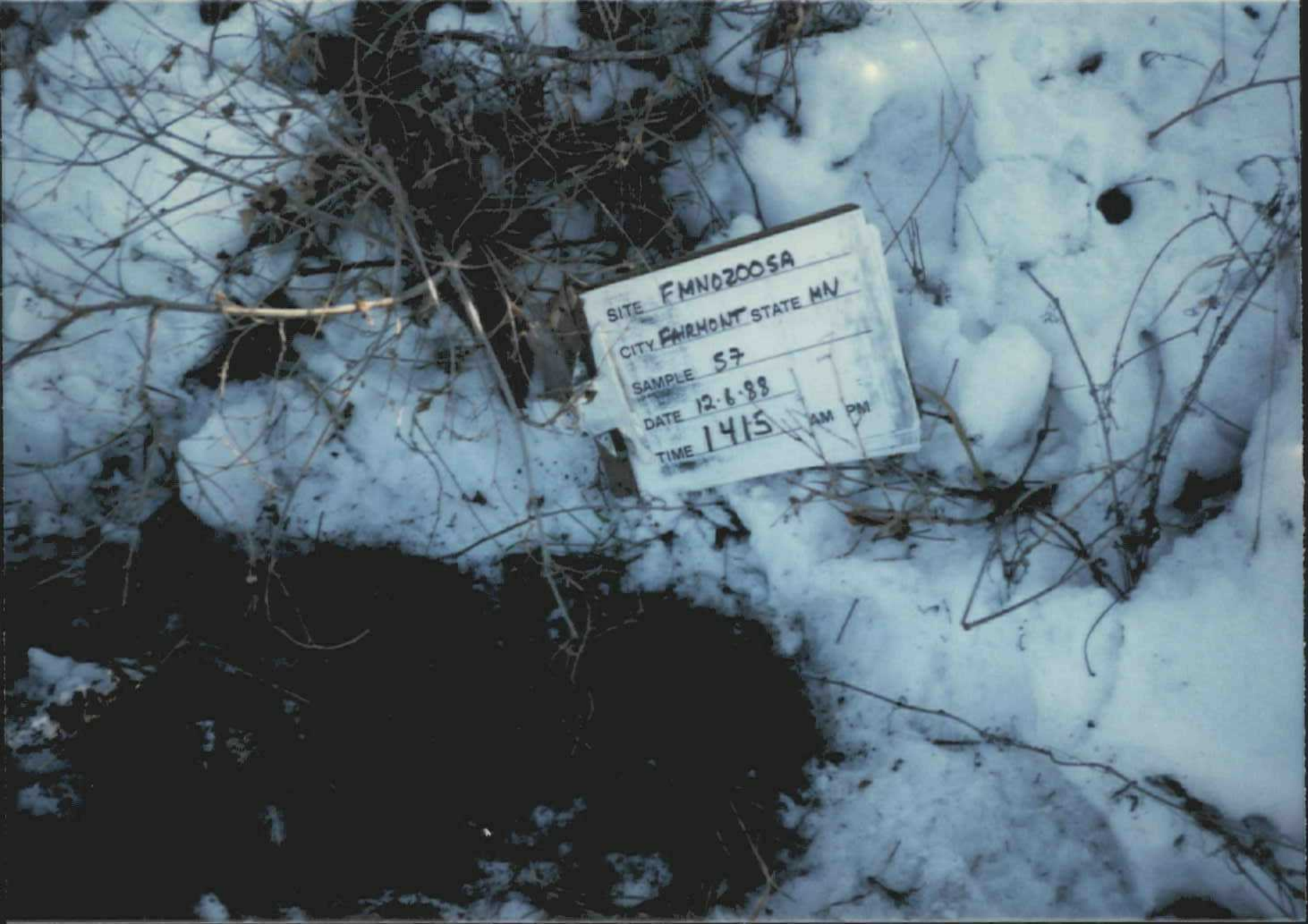

SITE FMN042005A
FAIRMONT STATE MN
AM PM


SITE FMN0200SA
CITY FAIRMONT STATE MN
SAMPLE S3
DATE 12-6-88
TIME 12:00 1000 H
AM PM


SITE FMN0200SA
CITY FAIRMONT STATE MN
SAMPLE S4
ATE 12·6·88
IME 1330 AM PM

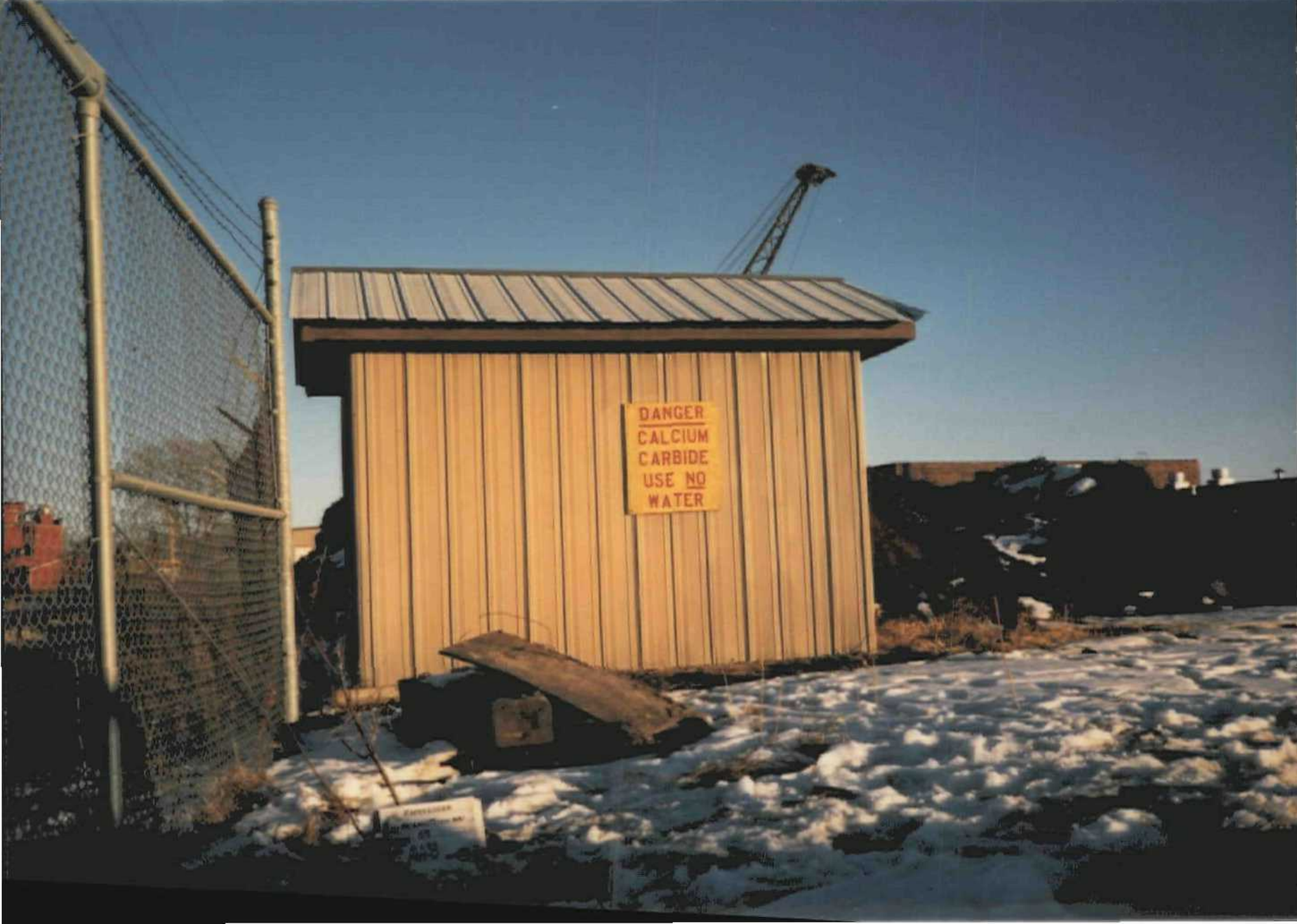

SITE FMN0200SA
CITY FAIRMONT STATE MN
SAMPLE 55
DATE 12·6·88
TIME 13:05 AM PM


FMNL 2005A
13:30

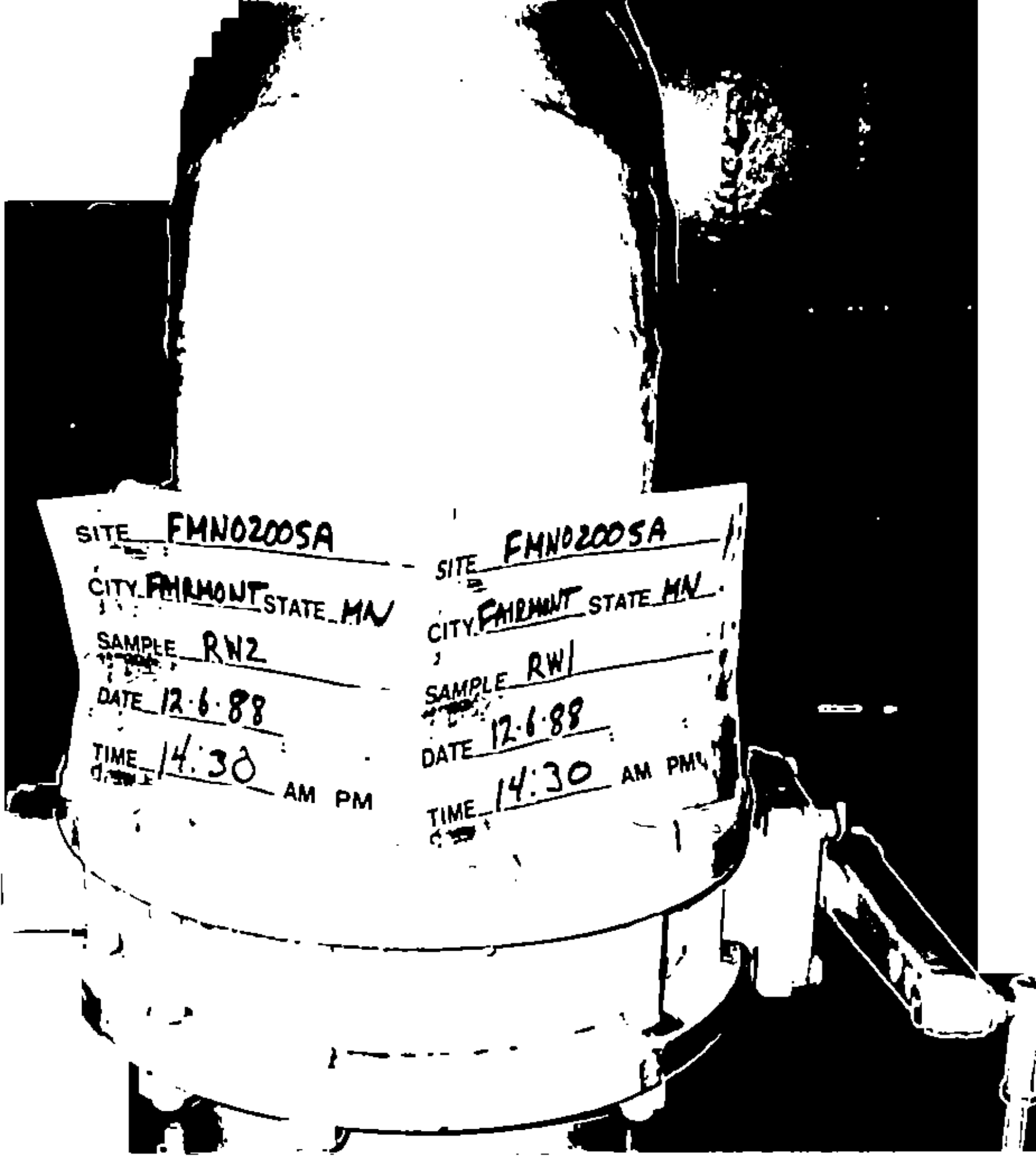

SITE FMN0200SA
CITY FAIRMONT STATE MN
SAMPLE 57
DATE 12-6-88
TIME 1415 AM PM


SITE FM
CITY FAIRMONT STATE MN
SAMPLE 58
DATE 12-6-88
TIME 14:45
AM PM


AMPLE 59
ATE 12-6-88
ME 1440
AM PM


DANGER
CALCIUM
CARBIDE
USE NO
WATER


SITE FMN0200SA
CITY FAIRMONT STATE MN
SAMPLE 311
DATE 12-6-88
TIME 1530 AM PM


SITE FMN0200SA
CITY FAIRMONT STATE MN
SAMPLE RW2
DATE 12-6-88
TIME 14:30 AM PM
SITE FMN0200SA
CITY FAIRMONT STATE MN
SAMPLE RW1
DATE 12-6-88
TIME 14:30 AM PM

FIELD PHOTOGRAPH LOG SHEET

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 1 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN020058

DATE: > 12-6-88

TIME: > 10:30 am

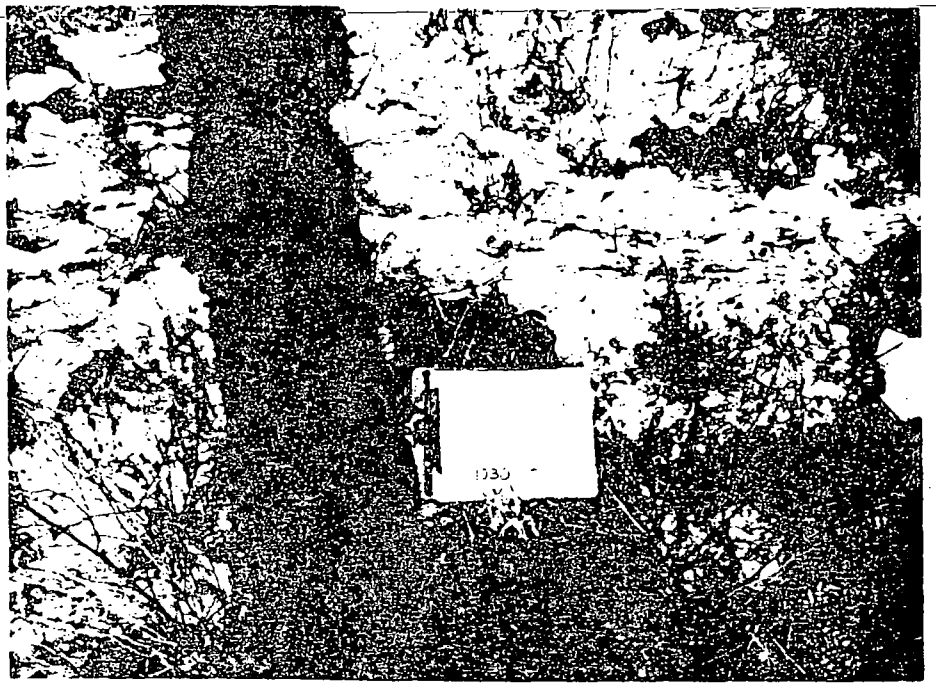
DIRECTION OF PHOTOGRAPH:
> West

WEATHER CONDITIONS:
> Clear, cold, high 44°F

> S.W. wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> S1



DESCRIPTION: > Soil sample "S1" showing location and ground

> cover (weeds).

DATE: > 12-6-88

TIME: > 10:30 am

DIRECTION OF PHOTOGRAPH:
> North West

WEATHER CONDITIONS:
> Clear, cold, high 44°F

> S.W. wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> S1

DESCRIPTION: > Location is about 40 feet south of northern-most set

> of RR. tracks, near RR bridge that spans waterway between Lake George and Lake Sisseton.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 2 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: > 12-06-88

TIME: > 11:00 am

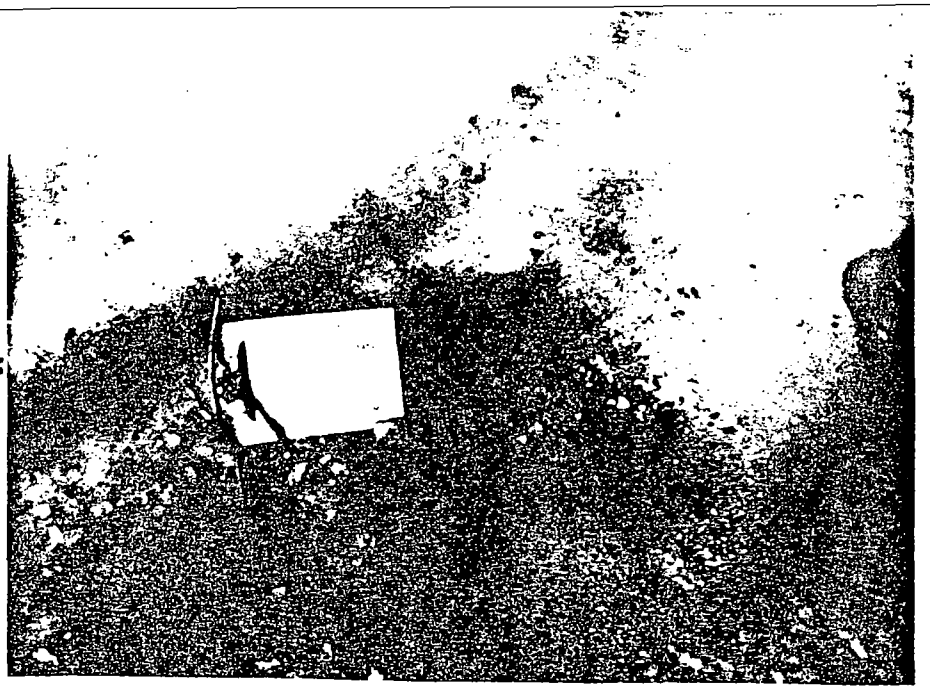
DIRECTION OF PHOTOGRAPH:
> West

WEATHER CONDITIONS:
> Clear, cold, high 44°F

> S.W. Wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> S2



DESCRIPTION: > Hole in ice through which sediment sample "S2" was
> taken.

DATE: > 12-06-88

TIME: > 11:00 am

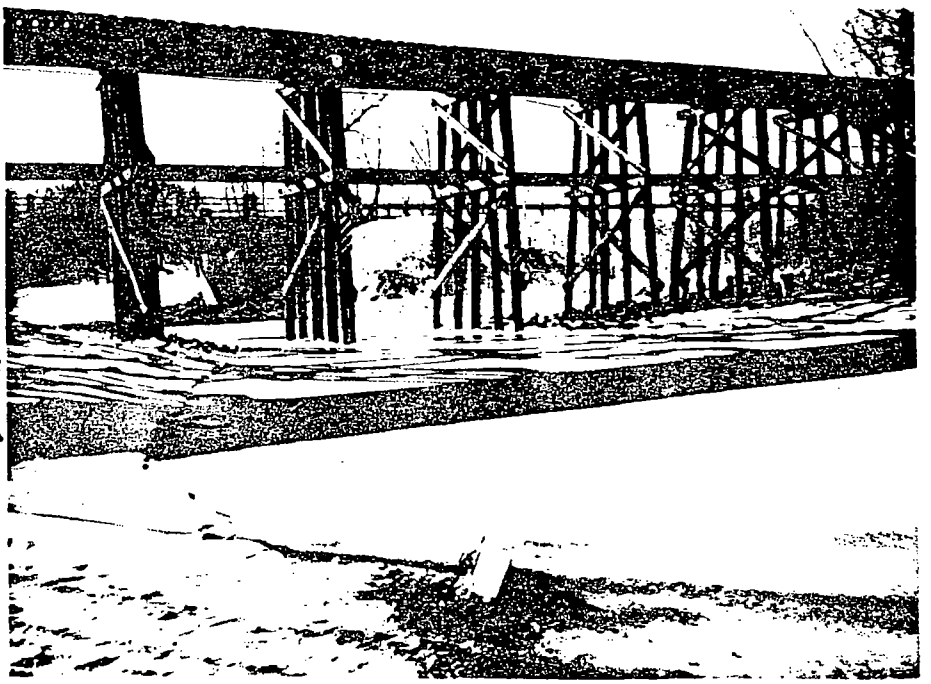
DIRECTION OF PHOTOGRAPH:
> Southwest

WEATHER CONDITIONS:
> Clear, cold, high 44°F

> S.W wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> S2



DESCRIPTION: > Location is about 5 feet from eastern shoreline of channel
> that connects Lake George and Lake Sisseton, between the northernmost and southernmost R.R. bridges, 20 ft. South of north bridge.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 3 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88 TIME: >11:15am DIRECTION OF PHOTOGRAPH: > North PHOTOGRAPHED BY: > R. Galmore

WEATHER CONDITIONS: > Clear, Cold, high 44°F, winds S.W. 5-15 mph SAMPLE ID (if applicable): > N/A

DESCRIPTION: > This is one of three pages on which a panoramic view of the landfilled area is made evident. Photos were taken from west to east in sequence, while standing on the southernmost RR track facing the northernmost RR track. Filled area lies beneath the snow covered area (foreground).

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: FAIRMONT RAILWAY MOTORS

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88 TIME: >11:20 am DIRECTION OF PHOTOGRAPH: >North PHOTOGRAPHED BY: >R. Galmore

WEATHER CONDITIONS: >Clear, cold, high 44°F, S.W. winds 5-15 mph. SAMPLE ID (if applicable): > N/A

DESCRIPTION: > Pan #2 of 3. Telephone pole is the same in both photos. George Lake is in background. Northernmost R.R. tracks lie just beyond the fill area. Continuation of previous page ... also, see next page.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 5 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN020038

DATE: >12-06-88 TIME: >11:30am DIRECTION OF PHOTOGRAPH: >North PHOTOGRAPHED BY: > R. Galmore

WEATHER CONDITIONS: > Clear, Cold, high 44°F, S.W. winds 5-15 mph SAMPLE ID (if applicable): > N/A

DESCRIPTION: > Pan #3 of 3. Note snowmobile tracks in snow on top of fill area. Lake George is in background. Sequence of photos is west to east.

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

TIME: >11:45 am

DIRECTION OF PHOTOGRAPH: > West

WEATHER CONDITIONS: >clear, cold, high 44°F

>S.W. winds 5-15 mph

PHOTOGRAPHED BY: > R. Galmore

SAMPLE ID (if applicable): > N/A

DESCRIPTION: > Photo taken from 4th ave, facing west over > fill area between north & south sets of R.R. tracks.

DATE: >12-06-88

TIME: >12:00 pm

DIRECTION OF PHOTOGRAPH: > N/A

WEATHER CONDITIONS: >clear, cold, high 44°F

>S.W. wind 5-15 mph

PHOTOGRAPHED BY: >R. Galmore

SAMPLE ID (if applicable): > S3

DESCRIPTION: > Hole in ice through which sediment sample "S3" > was collected.

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

TIME: > 12:00 pm

DIRECTION OF PHOTOGRAPH:
> South

WEATHER CONDITIONS:
>Clear, cold, high 44°F
> SW. winds 5-15 mph

PHOTOGRAPHED BY:
> R. Galeone

SAMPLE ID (if applicable):
> S3

DESCRIPTION: > Placard for sediment sample "S3" in foreground with
> View to south of twin RR bridges spanning the waterway between Lake George and Sisseton Lake. "S3" taken 10 ft. from shoreline.

DATE: >12-06-88

TIME: >13:06 pm

DIRECTION OF PHOTOGRAPH:
> N/A

WEATHER CONDITIONS:
>Clear, Cold, 44°F
> SW. wind 5-15 mph

PHOTOGRAPHED BY:
>K. Sims

SAMPLE ID (if applicable):
> S5

DESCRIPTION: > Soil sample S5 taken in Lincoln park as a background
> sample.

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

TIME: >13:05 pm

DIRECTION OF PHOTOGRAPH: >South

WEATHER CONDITIONS: >Clear, Cold, 44°F

>Winds SW. 5-15 mph

PHOTOGRAPHED BY: >K. Sims

SAMPLE ID (if applicable): >S5

DESCRIPTION: >Soil sample "S5" location at placard with Lake George in background. Sample taken about midslope (20% Slope) in Lincoln Park.

DATE: >12-06-88

TIME: >13:30 pm

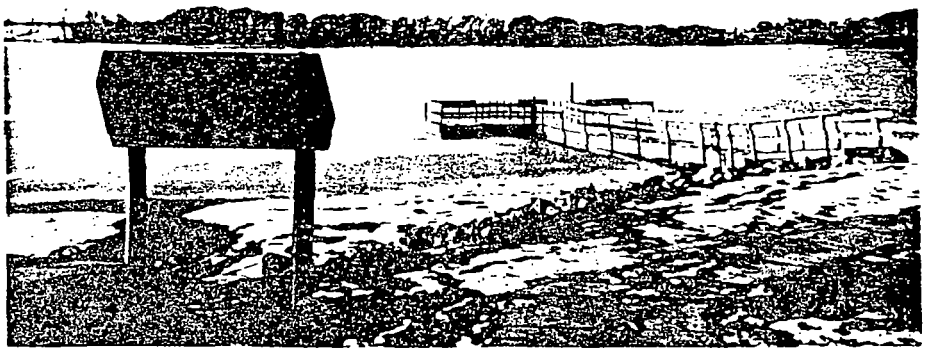
DIRECTION OF PHOTOGRAPH: >West

WEATHER CONDITIONS: >Clear, Cold, high 44°

>SW. wind 5-15 mph

PHOTOGRAPHED BY: >K. Sims

SAMPLE ID (if applicable): >N/A



DESCRIPTION: >Point used as access location for off-site sediment sample "S6". Facing west over Sisseton Lake Fishing pier. "S6" was taken just north of this pier about 75 ft.

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN02005B

DATE: > 12-06-88

TIME: > 13:30 pm

DIRECTION OF PHOTOGRAPH:
> N/A

WEATHER CONDITIONS:
> Clear, Cold, high 44°F

> SW wind 5-15 mph

PHOTOGRAPHED BY:
> K. Sims

SAMPLE ID (if applicable):
> S6

DESCRIPTION: > Hole in Sisseton Lake ice cover through which
> background sediment sample "S6" was taken. Located about 75 ft. North of Sisseton Lake fishing pier, 5-10 ft. from shore.

DATE: > 12-06-88

TIME: > 13:30 pm

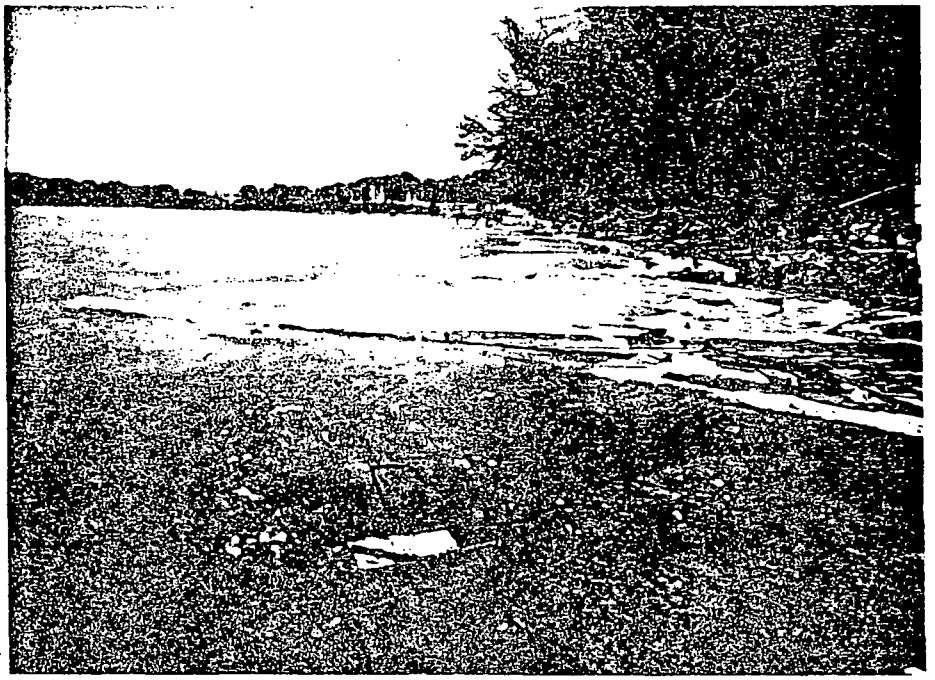
DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
> Clear, Cold, high 44°

> SW wind 5-15 mph

PHOTOGRAPHED BY:
> K. Sims

SAMPLE ID (if applicable):
> S6



DESCRIPTION: > Facing north over sample location "S6", along
> Sisseton Lake shoreline.

SITE NAME: Fairmont Railway Motors PAGE 10 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN10200SB

DATE: >12-06-88

TIME: >1330

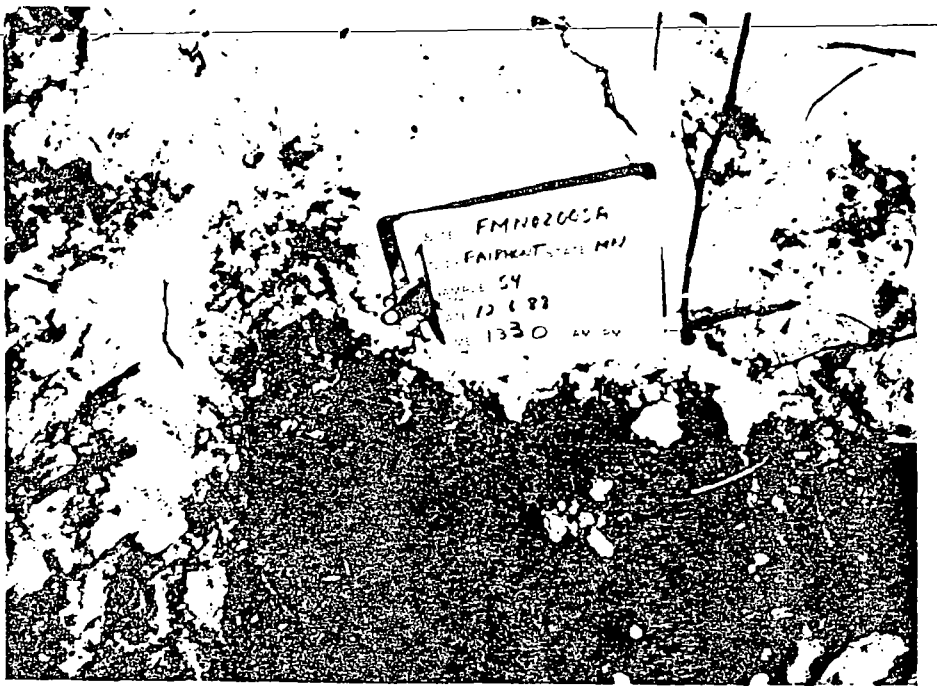
DIRECTION OF PHOTOGRAPH:
> South

WEATHER CONDITIONS:
>Clear, Cold, high 44°F

>Wind S.W. 5-15 mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> S4



DESCRIPTION: >Closeup of S4 soil sample

>

DATE: >12-6-88

TIME: >1330

DIRECTION OF PHOTOGRAPH:
> South

WEATHER CONDITIONS:
>clear, cold, high 44°F

>SW Winds 5-15 mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> S4

DESCRIPTION: >Perspective of S4

>and local terrain/vegetation

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

TIME: >14:15pm

DIRECTION OF PHOTOGRAPH:
> N/A

WEATHER CONDITIONS:
>clear, cold, <44°F

>S.W. wind, 5-15mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> S7

DESCRIPTION: > Closeup of "S7" soil sample.

>

DATE: >12-06-88

TIME: >14:15pm

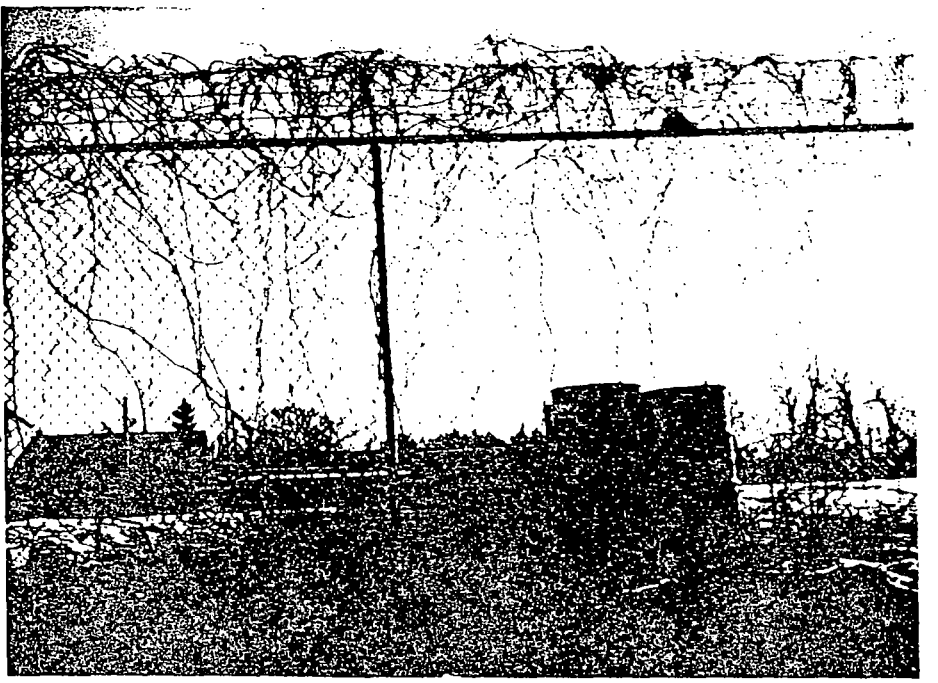
DIRECTION OF PHOTOGRAPH:
> South

WEATHER CONDITIONS:
>clear, cold, <44°F

>S.W. wind 5-15mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> S7



DESCRIPTION: > Photo taken from north-most R.R. track showing >perspective of soil sample S7.

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: > 12-06-88

TIME: > 14:15 pm

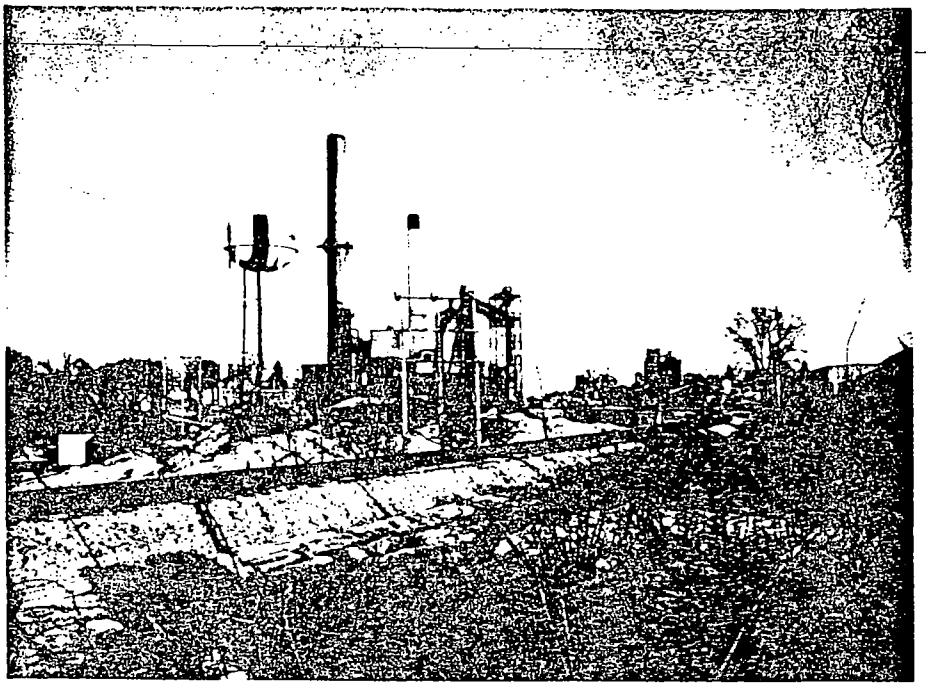
DIRECTION OF PHOTOGRAPH:
> Northeast

WEATHER CONDITIONS:
> Clear, cold, <40°F

> SW wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> S7



DESCRIPTION: > Perspective of "S7" with power plant in > background.

DATE: > 12-06-88

TIME: > 14:30 pm

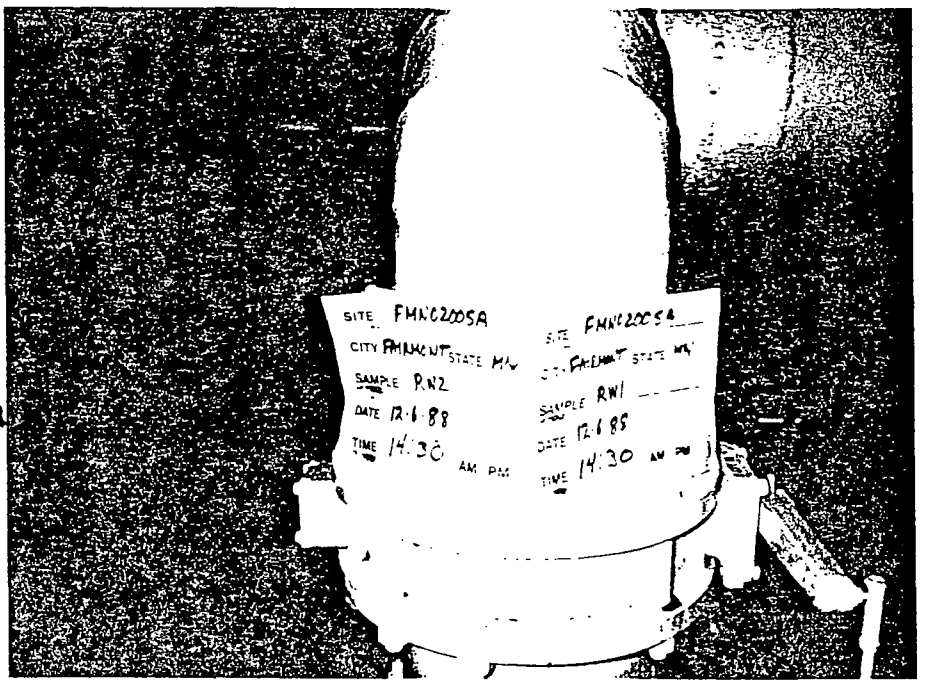
DIRECTION OF PHOTOGRAPH:
> N.A

WEATHER CONDITIONS:
> Clear, Cold, <40°F

> S.W. wind 5-15 mph

PHOTOGRAPHED BY:
> K. Sims

SAMPLE ID (if applicable):
> RW1 + RW2



DESCRIPTION: > RW1 and RW2 (duplicate) taken from this > access point in the City's (Fairmont, MN) municipal water department building on Albion Street.

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 13 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

TIME: >14:45 pm

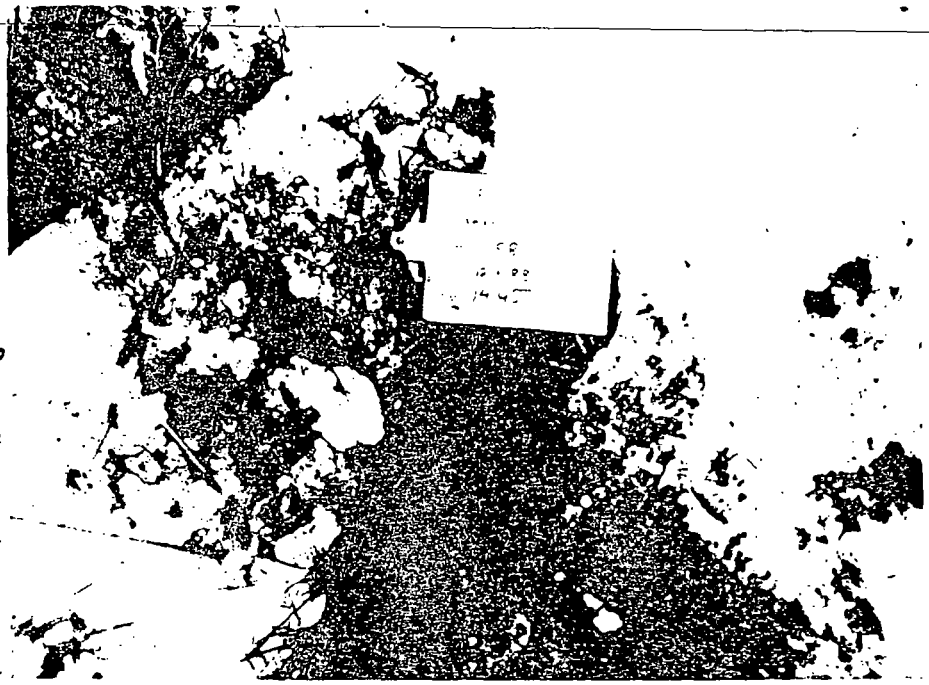
DIRECTION OF PHOTOGRAPH:
> N/A

WEATHER CONDITIONS:
>Clear, Cold high 44°

>SW wind 5-15 mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> SB



DESCRIPTION: > Closeup of "SB" soil sample location.

>

DATE: >12-06-88

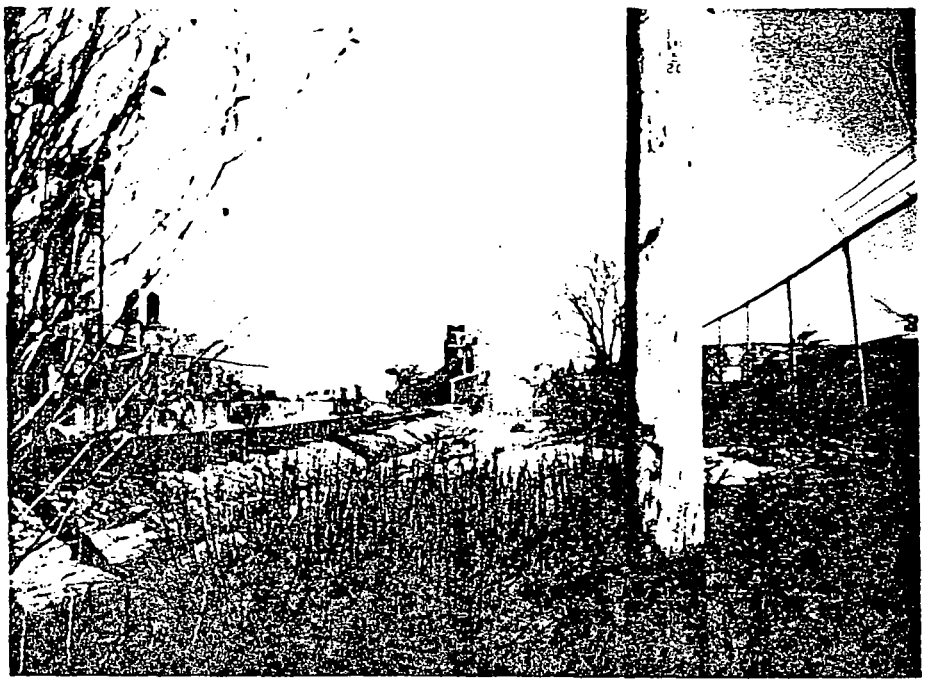
TIME: >14:45 pm

DIRECTION OF PHOTOGRAPH:
> East

WEATHER CONDITIONS:
>Clear, cold
S.W.
>Wind 5-15 mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> SB



DESCRIPTION: > Perspective of "SB".

>

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 14 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

TIME: >14:45pm

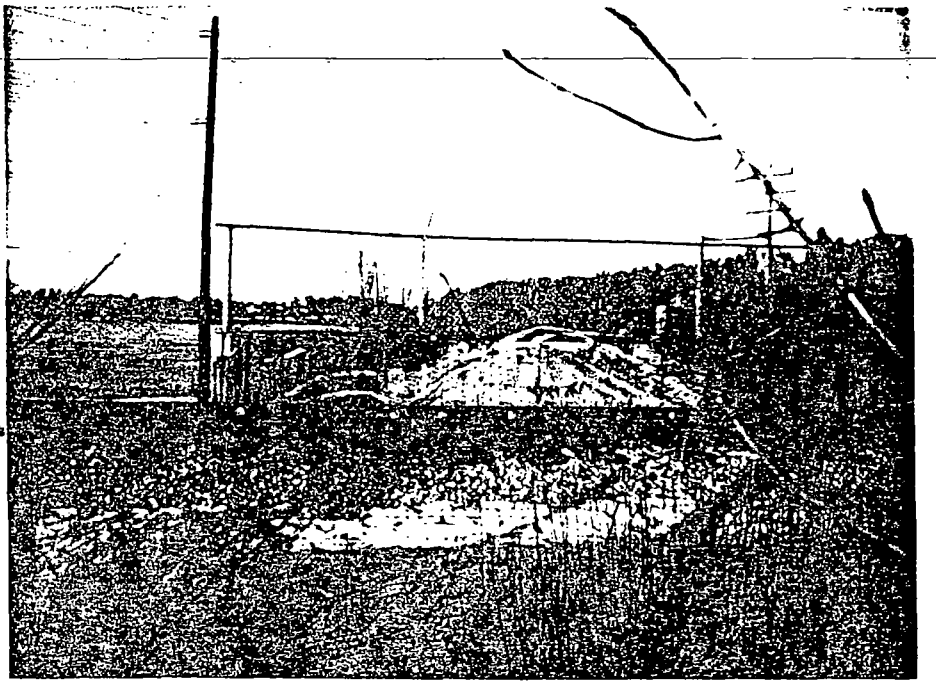
DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
>Clear, Cold

>SW. wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> S8



DESCRIPTION: > Northward perspective of "S8", Coal pile > for IL Power Co. with George Lake in background.

DATE: >12-06-88

TIME: >14:40pm

DIRECTION OF PHOTOGRAPH:
> NORTH

WEATHER CONDITIONS:
>Clear, Cold, high 44°

>SW wind 5-15 mph

PHOTOGRAPHED BY:
>D. Sullivan

SAMPLE ID (if applicable):
> S9

DESCRIPTION: > Closeup of "S9" along northern boundary of > property.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 15 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: > 12-06-88

TIME: > 14:40 pm

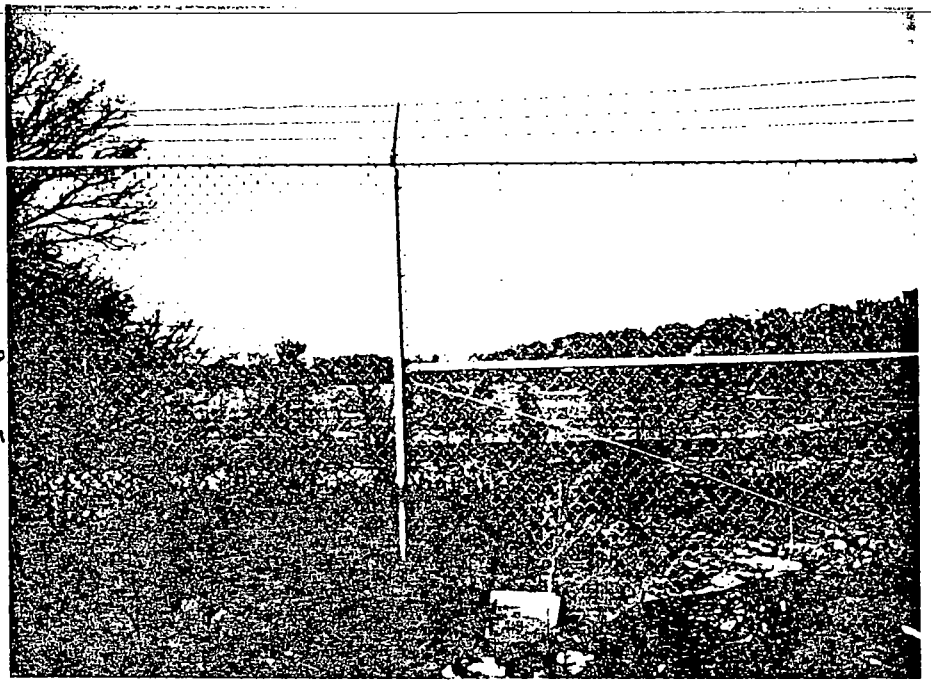
DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
> Clear, Cold, high 44°

> SW wind 5-15 mph

PHOTOGRAPHED BY:
> D. Sullivan

SAMPLE ID (if applicable):
> 59



DESCRIPTION: > Perspective of "59" facing North over R.R. tracks
> and Lake George.

DATE: > 12-06-88

TIME: > 14:40

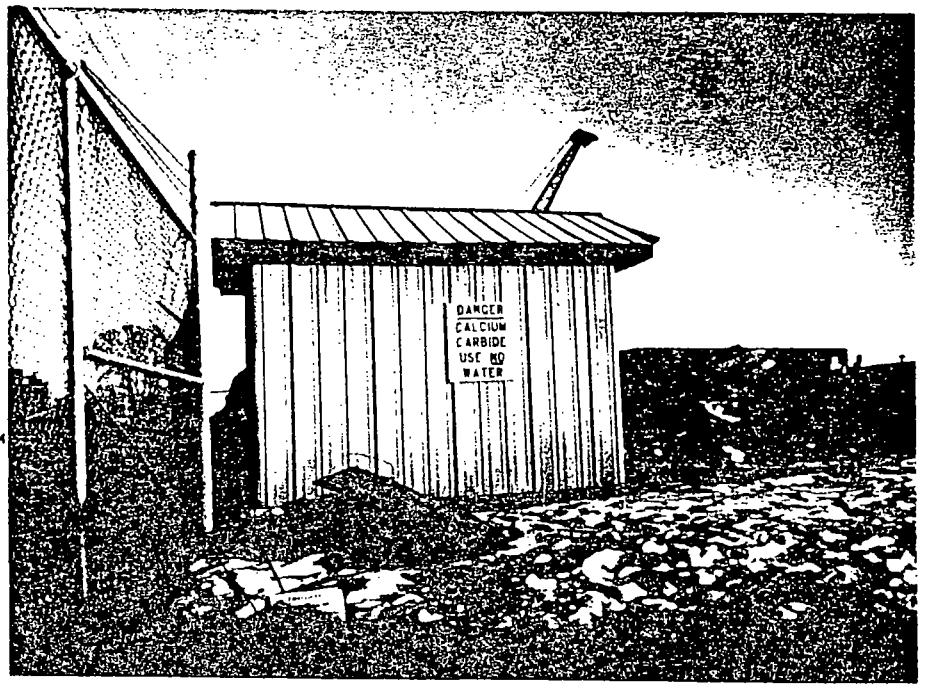
DIRECTION OF PHOTOGRAPH:
> East

WEATHER CONDITIONS:
> Clear & Cold

> SW wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> 59



DESCRIPTION: > Perspective of "59" facing East along
> northern property boundary. Metal shavings/cuttings on right. This is on top of previously filled area.

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

TIME: >15:15 pm

DIRECTION OF PHOTOGRAPH:
> N/A

WEATHER CONDITIONS:
>clear, cold, high 4's

>SW wind 5-15 mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> S10

DESCRIPTION: > Closeup of "S10" soil sample.

>

DATE: >12-06-88

TIME: >15:15 pm

DIRECTION OF PHOTOGRAPH:
> East

WEATHER CONDITIONS:
>Clear & Cold

>SW wind 5-15 mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
>S10

DESCRIPTION: > Perspective of "S10" facing East. Note
> metal scrap. This area is on top of previously filled area.

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 17 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: > 12-06-88

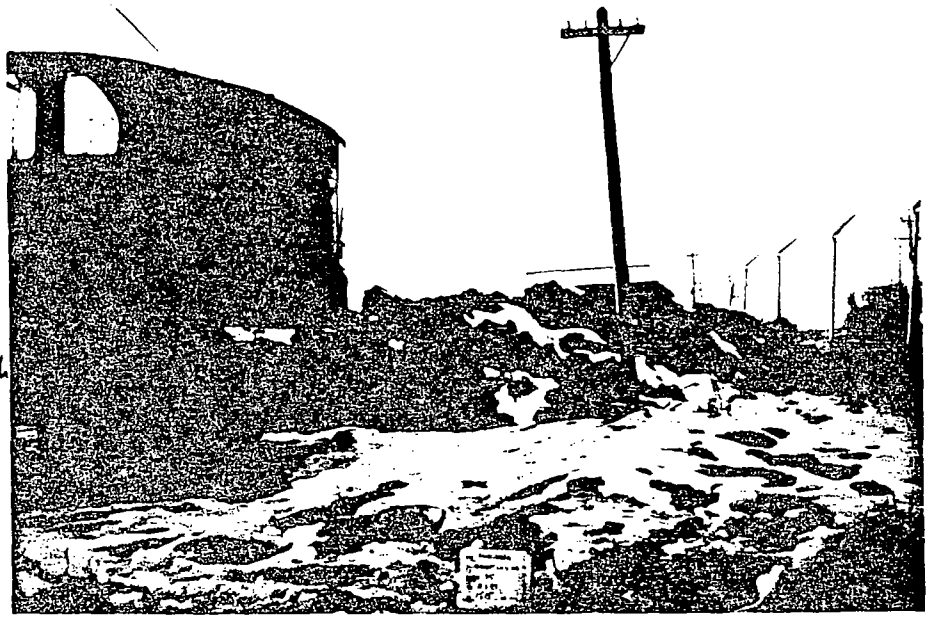
TIME: > 15:15

DIRECTION OF PHOTOGRAPH:
> West

WEATHER CONDITIONS:
> Clear, Cold,
> S.W. wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> 510



DESCRIPTION: > Perspective of "510" facing West. Note
> metal shavings / cuttings stored beyond crane, near pole. Previously filled area directly below Crane.

DATE: > 12-06-88

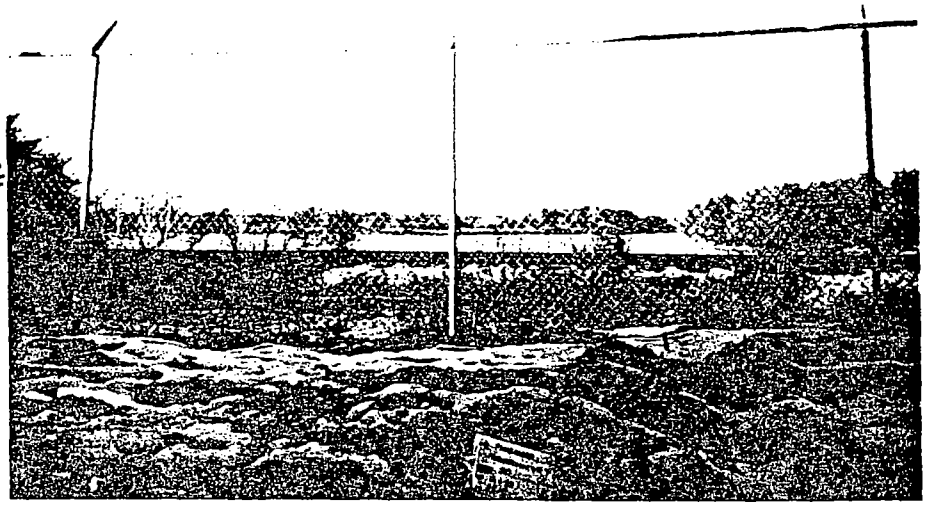
TIME: > 15:15 pm

DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
> Clear, Cold, < 44° F
> SW wind 5-15

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> 510



DESCRIPTION: > Perspective of "510" facing north. Lake
> George in background.

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-6-88

TIME: >1530

DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
>clear, Cold, High 44°F

>SW Winds 5-15mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> S11

DESCRIPTION: > close up of S11 soil sample

>

DATE: >12-06-88

TIME: >1530

DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
> clear Cold

>SW wind 5-15mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> S4

DESCRIPTION: >Perspective of S11

>facing north, Power Co. Metal beams and scrap metal pile in foreground.

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

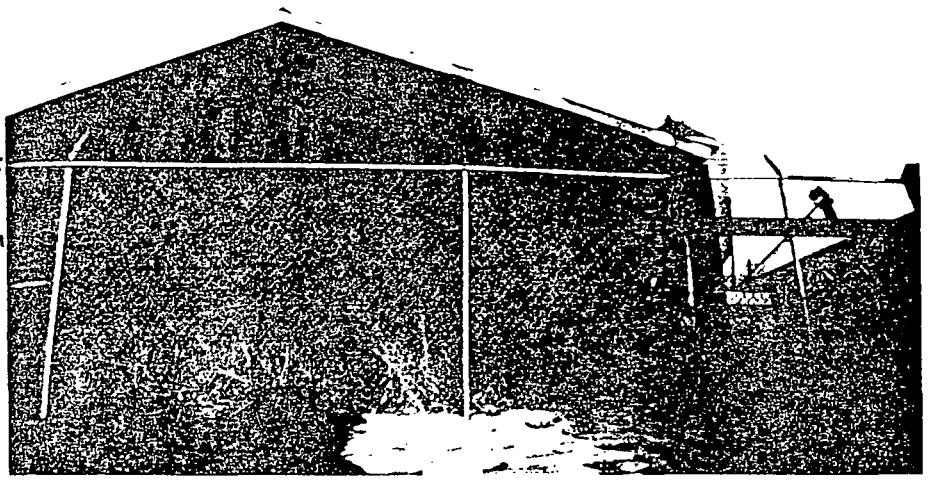
TIME: >15:30 pm

DIRECTION OF PHOTOGRAPH:
> East

WEATHER CONDITIONS:
>Clear, Cold @ 40°F
>SW wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> S11



DESCRIPTION: > Perspective of "S11" facing East.
>

DATE: >12-06-88

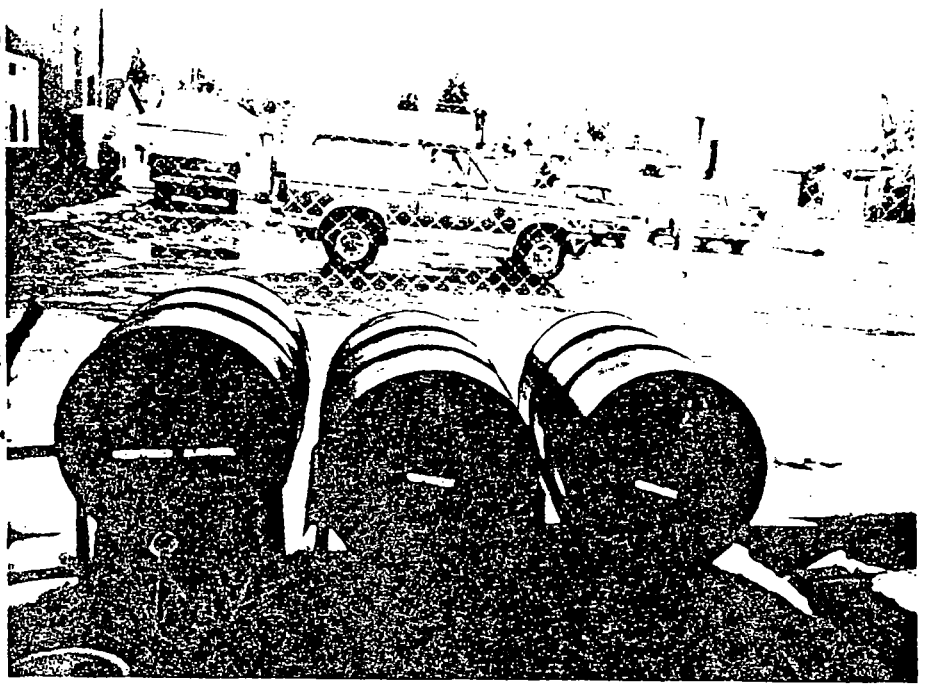
TIME: >15:35 pm

DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
>Clear, Cold @ 40°F
>SW. wind 5-15 mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> N/A



DESCRIPTION: > Drums of Denatured Alcohol & Kerosene along northern
>property boundary.

SITE NAME: FAIRMONT RAILWAY MOTORS PAGE 20 OF 20

U.S. EPA ID: MND096488986 TDD: F05-8710-005 PAN: FMN0200SB

DATE: >12-06-88

TIME: >15:40 pm

DIRECTION OF PHOTOGRAPH:
> South

WEATHER CONDITIONS:
>Clear, Cold, @ 35°F

> S.W. Wind 5-15 mph

PHOTOGRAPHED BY:
> R. Galmore

SAMPLE ID (if applicable):
> N/A

DESCRIPTION: > Fairmont Railway Motors' Main Building taken from > their northern property boundary, near the East end of plant.

DATE: >12-06-88

TIME: >15:50 pm

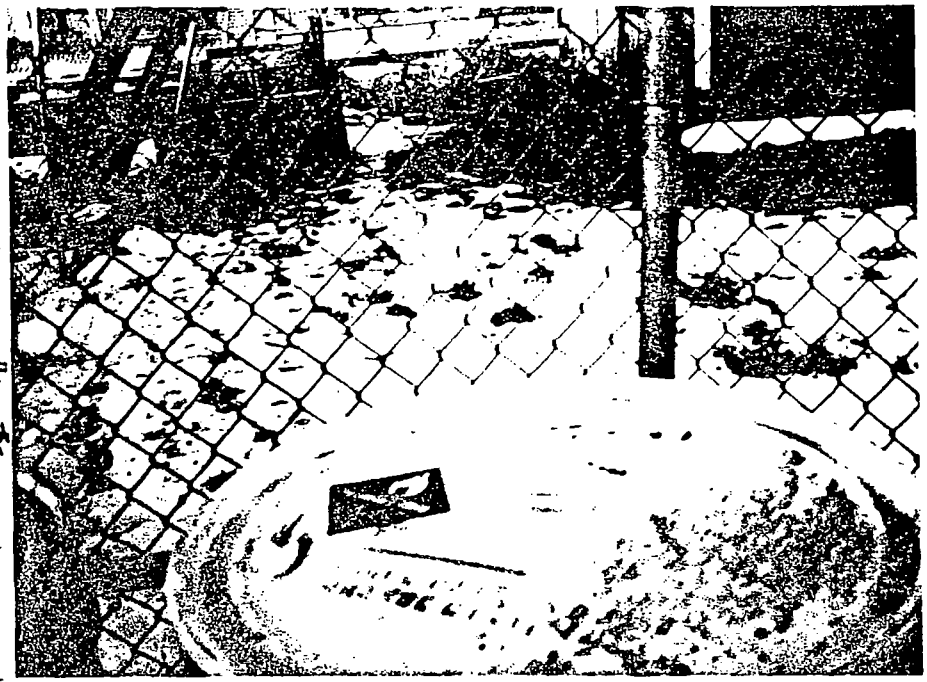
DIRECTION OF PHOTOGRAPH:
> North

WEATHER CONDITIONS:
>Clear, Cold, 35°F

> S.W. wind 5-15 mph

PHOTOGRAPHED BY:
>R. Galmore

SAMPLE ID (if applicable):
> N/A



DESCRIPTION: > Flammable material in drum along northern > property line, just east of 511 about 20 feet.

APPENDIX D

U.S. EPA TARGET COMPOUND LIST AND TARGET ANALYTE LIST QUANTITATION/DETECTION LIMITS

ADDENDUM A

ROUTINE ANALYTICAL SERVICES

CONTRACT REQUIRED DETECTION AND QUANTITATION LIMITS

Contract Laboratory Program
Target Compound List
Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Chloromethane	74-87-3	10 ug/L	10 ug/Kg
Bromomethane	74-83-9	10	10
Vinyl chloride	75-01-4	10	10
Chloroethane	75-00-3	10	10
Methylene chloride	75-09-2	5	5
Acetone	67-64-1	10	5
Carbon disulfide	75-15-0	5	5
1,1-dichloroethene	75-35-4	5	5
1,1-dichloroethane	75-34-3	5	5
1,2-dichloroethene (total)	540-59-0	5	5
Chloroform	67-66-3	5	5
1,2-dichloroethane	107-06-2	5	5
2-butanone (MEK)	78-93-3	10	10
1,1,1-trichloroethane	71-55-6	5	5
Carbon tetrachloride	56-23-5	5	5
Vinyl acetate	108-05-4	10	10
Bromodichloromethane	75-27-4	5	5
1,2-dichloropropane	78-87-5	5	5
cis-1,3-dichloropropene	10061-01-5	5	5
Trichloroethene	79-01-6	5	5
Dibromochloromethane	124-48-1	5	5
1,1,2-trichloroethane	79-00-5	5	5
Benzene	71-43-2	5	5
Trans-1,3-dichloropropene	10061-02-6	5	5
Bromoform	75-25-2	5	5
4-Methyl-2-pentanone	108-10-1	10	10
2-Hexanone	591-78-6	10	10
Tetrachloroethene	127-18-4	5	5
Tolene	108-88-3	5	5
1,1,2,2-tetrachloroethane	79-34-5	5	5
Chlorobenzene	108-90-7	5	5
Ethyl benzene	100-41-4	5	5
Styrene	100-42-5	5	5
Xylenes (total)	1330-20-7	5	5

Table A
Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Phenol	108-95-2	10 ug/L	330 ug/Kg
bis(2-Chloroethyl) ether	111-44-4	10	330
2-Chlorophenol	95-57-8	10	330
1,3-Dichlorobenzene	541-73-1	10	330
1,4-Dichlorobenzene	106-46-7	10	330
Benzyl Alcohol	100-51-6	10	330
1,2-Dichlorobenzene	95-50-1	10	330
2-Methylphenol	95-48-7	10	330
bis(2-Chloroisopropyl) ether	108-60-1	10	330
4-Methylphenol	106-44-5	10	330
N-Nitroso-di-n-dipropylamine	621-64-7	10	330
Hexachloroethane	67-72-1	10	330
Nitrobenzene	98-95-3	10	330
Isophorone	78-59-1	10	330
2-Nitrophenol	88-75-5	10	330
2,4-Dimethylphenol	105-67-9	10	330
Benzoic Acid	65-85-0	50	1600
bis(2-Chloroethoxy) methane	111-91-1	10	330
2,4-Dichlorophenol	120-83-2	10	330
1,2,4-Trichlorobenzene	120-82-1	10	330
Naphthalene	91-20-3	10	330
4-Chloroaniline	106-47-8	10	330
Hexachlorobutadiene	87-68-3	10	300
4-Chloro-3-methylphenol	59-50-7	10	330
2-Methylnaphthalene	91-57-6	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-Trichlorophenol	88-06-2	10	330
2,4,5-Trichlorophenol	95-95-4	50	1600
2-Chloronaphthalene	91-58-7	10	330
2-Nitroaniline	88-74-4	50	1600
Dimethylphthalate	131-11-3	10	330
Acenaphthylene	208-96-8	10	330
2,6-Dinitrotoluene	606-20-2	10	330
3-Nitroaniline	99-09-2	50	1600
Acenaphthene	83-32-9	10	330
2,4-Dinitrophenol	51-28-5	50	1600
4-Nitrophenol	100-02-7	50	1600
Dibenzofuran	132-64-9	10	330
2,4-Dinitrotoluene	121-14-2	10	330
Diethylphthalate	84-66-2	10	330
4-Chlorophenyl-phenyl ether	7005-72-3	10	330

Table A
Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SLUDGE SEDIMENT
Fluorene	86-73-7	10 ug/L	330 ug/Kg
4-Nitroaniline	100-01-6	50	1600
4,6-Dinitro-2-methylphenol	534-52-1	50	1600
N-nitrosodiphenylamine	86-30-6	10	330
4-Bromophenyl-phenylether	101-55-3	10	330
Hexachlorobenzene	118-74-1	10	330
Pentachlorophenol	87-86-5	50	1600
Phenanthrene	85-01-8	10	330
Anthracene	120-12-7	10	330
Di-n-butylphthalate	84-74-2	10	330
Fluoranthene	206-44-0	10	330
Pyrene	129-00-0	10	330
Butylbenzylphthalate	85-68-7	10	330
3,3'-Dichlorobenzidine	91-94-1	20	660
Benzo(a)anthracene	56-55-3	10	330
Chrysene	218-01-9	10	330
bis(2-Ethylhexyl)phthalate	117-81-7	10	330
Di-n-octylphthalate	117-84-0	10	330
Benzo(b)fluoranthene	205-99-2	10	330
Benzo(k)fluoranthene	207-08-9	10	330
Benzo(a)pyrene	50-32-8	10	330
Indeno(1,2,3-cd)pyrene	193-39-5	10	330
Dibenz(a,h)anthracene	53-70-3	10	330
Benzo(g,h,i)perylene	191-24-2	10	330

Table A
Contract Laboratory Program
Target Compound List
Pesticide and PCB Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
alpha-BHC	319-84-6	0.05 ug/L	8 ug/Kg
beta-BHC	319-85-7	0.05	8
delta-BHC	319-86-8	0.05	8
gamma-BHC (Lindane)	58-89-9	0.05	8
Heptachlor	76-44-8	0.05	8
Aldrin	309-00-2	0.05	8
Heptachlor epoxide	1024-57-3	0.05	8
Endosulfan I	959-98-8	0.05	8
Dieldrin	60-57-1	0.10	16
4,4'-DDE	72-55-9	0.10	16
Endrin	72-20-8	0.10	16
Endosulfan II	33213-65-9	0.10	16
4,4'-DDD	72-54-8	0.10	16
Endosulfan sulfate	1031-07-8	0.10	16
4,4'-DDT	50-29-3	0.10	16
Methoxychlor (Mariate)	72-43-5	0.5	80
Endrin ketone	53494-70-5	0.10	16
alpha-Chlordane	5103-71-9	0.5	80
gamma-chlordane	5103-74-2	0.5	80
Toxaphene	8001-35-2	1.0	160
AROCLOR-1016	12674-11-2	0.5	80
AROCLOR-1221	11104-28-2	0.5	80
AROCLOR-1232	11141-16-5	0.5	80
AROCLOR-1242	53469-21-9	0.5	80
AROCLOR-1248	12672-29-6	0.5	80
AROCLOR-1254	11097-69-1	1.0	160
AROCLOR-1260	11096-82-5	1.0	160

Table A
Contract Laboratory Program
Target Analyte List
Inorganic Quantitation Limits

COMPOUND	PROCEDURE	SOIL WATER	SEDIMENT SLUDGE
Aluminum	ICP	200 ug/L	40 mg/Kg
Antimony	Furnace	60	2.4
Arsenic	Furnace	10	2
Barium	ICP	200	40
Beryllium	ICP	5	1
Cadmium	ICP	5	1
Calcium	ICP	5000	1000
Chromium	ICP	10	2
Cobalt	ICP	50	10
Copper	ICP	25	5
Iron	Icp	100	20
Lead	Furnace	5	1
Magnesium	ICP	5000	1000
Manganese	ICP	15	3
Mercury	Cold Vapor	0.2	0.008
Nickel	ICP	40	8
Potassium	ICP	5000	1000
Selenium	Furnace	5	1
Silver	ICP	10	2
Sodium	ICP	5000	1000
Thallium	Furnace	10	2
Vanadium	ICP	50	10
Zinc	ICP	20	4
Cyanide	Color	10	2

ADDENDUM B

CENTRAL REGIONAL LABORATORY
DETECTION LIMITS

TABLE B
CENTRAL REGIONAL LABORATORY
VOLATILE DETECTION LIMITS

PARAMETER	CAS #	DETECTION LIMIt IN REAGENT WATER
Benzene	71-43-2	1.5 ug/L
Bromodichloromethane	75-27-4	1.5
Bromoform	75-25-2	1.5
Bromomethane	74-83-9	10
Carbon tetrachloride	56-23-5	1.5
Chlorobenzene	108-90-7	1.5
Chloroethane	75-00-3	1.5
2-Chloroethyl vinyl ether	110-75-8	1.5
Chloroform	67-66-3	1.5
Chloromethane	74-87-3	10
Dibromochloromethane	124-48-1	1.5
1,1-dichloroethane	75-34-3	1.5
1,2-dichloroethane	107-06-2	1.5
1,1-dichloroethene	75-35-4	1.5
Total-1,2-dichloroethene	540-59-0	1.5
1,2-dichloropropane	78-87-5	1.5
cis-1,3-dichlopropropene	10061-01-5	2
trans-1,3-dichloropropene	10061-02-6	1
Ethyl benzene	100-41-4	1.5
Methylene chloride*	75-09-2	1
1,1,2,2-tetrachloroethane	79-34-5	1.5
Tetrachloroethene	127-18-4	1.5
Toluene*	108-88-3	1.5
1,1,1-trichloroethane	71-55-6	1.5
1,1,2-trichloroethane	79-00-5	1.5
Trichloroethene	79-01-6	1.5
Vinyl chloride	75-01-4	10
Acrolein	107-02-8	100
Acetone*	67-64-1	75
Acrylonitrile	107-13-1	50
Carbon disulfide	75-15-0	3
2-butanone	78-93-3	(50)
Vinyl acetate	108-05-4	15
4-Methyl-2-Pentanone	108-10-1	(3)
2-Hexanone	519-78-6	(50)
Styrene	100-42-5	1
m-xylene	108-38-3	2
o-xylene**	95-47-6	
p-xylene**	106-42-3	2.5**
Total Xylene	1330-02-7	

* Common Laboratory Solvents.
Blank Limit is 5X Method Detection Limit.
( ) Values in parentheses are estimates.
Actual values are being determined at this time.
** The o-xylene and p-xylene are reported as a total of the two.

TABLE B (cont.)

CRL

SEMIVOLATILE DETECTION LIMITS

PARAMETER	CAS #	DETECTION LIMIT	BLANK LIMIT
Aniline	62-53-3	1.5 ug/L	3 ug/L
Bis(2-chloroethyl)ether	111-44-4	1.5	3
Phenol	108-95-2	2	4
2-Chlorophenol	95-57-8	2	4
1,3-Dichlorobenzene	541-73-1	2	4
1,4-Dichlorobenzene	106-46-7	2	4
1,2-Dichlorobenzene	95-50-1	2.5	5
Benzyl alcohol	100-51-6	2	4
Bis(2-chloroisopropyl) ether	39638-32-9	2.5	5
2-Methylphenol	95-48-7	1	2
Hexachloroethane	67-72-1	2	4
N-nitrosodipropylamine	621-64-7	1.5	3
Nitrobenzene	98-95-3	2.5	5
4-Methylphenol	106-44-5	1	2
Isophorone	78-59-1	2.5	5
2-Nitrophenol	88-75-5	2	4
2,4-Dimethylphenol	105-67-9	2	4
Bis(2-chloroethoxy)methane	111-91-1	2.5	5
2,4-Dichlorophenol	120-83-2	2	4
1,2,4-Trichlorobenzene	120-82-1	2	4
Naphthalene	91-20-3	2	4
4-Chloroaniline	106-47-8	2	4
Hexachlorobutadiene	87-68-3	2.5	5
Benzoic acid	65-85-0	(30)	(60)
2-Methylnapthalene	91-57-6	2	4
4-Chloro-3-methylphenol	59-50-7	1.5	3
Hexachlorocyclopentadiene	77-47-4	2	4
2,4,6-Trichlorophenol	88-06-2	1.5	3
2,4,5-Trichlorophenol	95-95-4	1.5	3
2-Chloronapthalene	91-58-7	1.5	3
Acenapthylene	208-96-8	1.5	3
Dimethyl phthalate	131-11-3	1.5	3
2,6-Dinitrotoluene	606-20-2	1	2
Acenaphthene	83-32-9	1.5	3
3-Nitroaniline	99-09-2	2.5	5
Dibenzofuran	132-64-9	1	2
2,4-Dinitrophenol	51-28-5	(15)	(30)
2,4-Dinitrotoluene	121-14-2	1	2

cont.

TABLE B (Cont.)

CRL

SEMIVOLATILE DETECTION LIMITS

PARAMETER	CAS #	DETECTION LIMIT	BLANK (a) LIMIT
Fluorene	86-73-7	1 ug/L	2 ug/L
4-Nitrophenol	100-02-7	1.5	3
4-Chlorophenyl phenyl ether	7005-72-3	1	2
Diethylphthalate	84-66-2	1	2
4,6-dinitro-2-methylphenol	534-52-1	(15)	(30)
1,2-Diphenylhydrazine	122-66-7	1	2
n-Nitrosodiphenylamine *	86-30-6		
Diphenylamine *	122-39-4	1.5	3
4-Nitroaniline	100-01-6	3	6
4-Bromophenyl-phenylether	101-55-3	1.5	3
Hexachlorobenzene	118-74-1	1.5	3
Pentachlorophenol	87-86-5	2	4
Phenanthrene	85-01-8	1	2
Anthracene	120-12-7	2.5	5
Di-n-butylphthalate	84-74-2	2	4
Fluoranthene	206-44-0	1.5	3
Pyrene	129-00-0	1.5	3
Butylbenzylphthalate	85-68-7	3.5	7
Chrysene **	218-01-9		
Benzo(a)anthracene **	56-55-3	1.5	3
bis(2-Ethylhexyl)phthalate	117-81-7	1	2
Di-n-octyl phthalate	117-84-0	1.5	3
Benzo(b)fluoranthene ***	205-99-2		
Benzo(k)fluoranthene ***	207-08-9	1.5	3
Benzo(a)pyrene	50-32-8	2	4
Indeno(1,2,3-cd)pyrene	193-39-5	3.5	7
Dibenzo(a,h)anthracene	53-70-3	2.5	5
Benzo(g,h,i)perylene	191-24-2	4	8
2-Nitroaniline	88-74-4	1	2

* These two parameters are reported as a total.
** These two parameters are reported as a total.
*** These two parameters are reported as a total.
(a) If the blank limit is exceeded, the sample is reextracted and rerun.
( ) Values in parentheses are estimates.
The actual values are being determined at this time.

Note: Limits are for reagent water.

TABLE B (Cont.)
CRL
PESTICIDE AND PCB DETECTION LIMITS

PARAMETER	CAS #	DETECTION LIMIT
Aldrin	309-00-2	0.005 ug/L
alpha BHC	319-84-6	(0.010)
beta BHC	319-85-7	(0.005)
delta BHC	319-86-8	(0.005)
gama BHC (Lindane)	58-89-9	0.005
Chlordane	57-74-8	(0.020)
4,4'-DDD	72-54-8	(0.020)
4,4'-DDE	72-55-9	(0.005)
4,4'-DDT	50-29-3	0.020
Dieldrin	60-57-1	0.010
Endosulfan I	959-98-8	0.010
Endosulfan II	33213-65-9	0.010
Endosulfan sulfate	1031-07-8	(0.10)
Endrin	72-20-8	0.010
Endrin aldehyde	7421-93-4	(0.030)
Endrin ketone	53494-70-5	(0.030)
Heptachlor	76-44-8	0.030
Heptachlor epoxide	1024-57-3	0.005
4,4'-Methoxychlor	72-43-5	0.020
Toxaphene	8001-35-2	(0.25)
PCB-1242	53469-21-9	(0.10)
PCB-1248	12672-29-6	(0.10)
PCB-1254	11097-69-1	(0.10)
PCB-1260	11096-82-5	(0.10)

( ) Values in parentheses are estimates.
Actual values are being determined at this time.

Note: Limits are for reagent water.

TABLE B (Cont.)

CRL

INORGANIC DETECTION LIMITS

COMPOUND	PROCEDURE	DETECTION LIMITS	RANGE	UNITS
Aluminum	ICP	100	80 to 1,000,000	ug/L
Antimony	Furnace	2	2 to 30	ug/L
Arsenic	Furnace	2	2 to 30	ug/L
Barium	ICP	50	6 to 20,000	ug/L
Beryllium	ICP	5	1 to 20,000	ug/L
Boron	ICP	80	80 to 20,000	ug/L
Cadmium	ICP	10	10 to 20,000	ug/L
Cadmium	Furnace	0.2	0.2 to 2	ug/L
calcium	ICP	1000	0.5 to 1,000	mg/L
Chromium	ICP	10	8 to 20,000	ug/L
Cobalt	ICP	10	6 to 20,000	ug/L
Copper	ICP	10	6 to 20,000	ug/L
iron	ICP	100	80 to 1,000,000	ug/L
Lead	Furnace	2	2 to 30	ug/L
Lead	ICP	70	70 to 20,000	ug/L
Lithium	ICP	10	10 to 20,000	ug/L
Magnesium	ICP	1000	0.1 to 200	mg/L
Maganese	ICP	10	5 to 20,000	ug/L
Mercury	Cold vapor	0.2	0.1 to 2	ug/L
Molybdenum	ICP	15	15 to 20,000	ug/L
Nickel	ICP	20	15 to 20,000	ug/L
Potassium	ICP	2000	5 to 1,000	mg/L
Selenium	Furnace	2	2 to 30	ug/L
Silver	ICP	5	6 to 10,000	ug/L
Sodium	ICP	1000	1 to 1,000	mg/L
Strontium	ICP	10	10 to 20,000	ug/L
Sulfide	Titration	1	< 1	mg/L
Sulfide	Color	0.05	< 1	mg/L
Thallium	Furnace	2	2 to 30	ug/L
Titanium	ICP	25	25 TO 20,000	UG/L
Tin	ICP	40	40 to 20,000	ug/L
Vanadium	ICP	10	5 to 20,000	ug/L
Yttrium	ICP	5	5 to 20,000	ug/L
Zinc	ICP	20	40 to 1,000,000	ug/L
Cyanide	AA	5.0	8 to 200	ug/L

Note: The above list may or may not contain compounds that are routinely analyzed at CRL for low level detection limits for drinking water.

See inorganic Routine Analytical Services for related CAS #.

SPECIAL ANALYTICAL SERVICES
DETECTION LIMITS

Drinking Water Samples

TABLE C
SPECIAL ANALYTICAL SERVICES DRINKING WATER
VOLATILE QUANTITATION LIMITS

PARAMETER	CAS #	DETECTION LIMIT IN REAGENT WATER
Benzene	71-43-2	1.5 ug/L
Bromodichloromethane	75-27-4	1.5
Bromoform	75-25-2	1.5
Bromomethane	74-83-9	1.5
Carbon tetrachloride	56-23-5	1.5
Chlorobenzene	108-90-7	1.5
Chloroethane	75-00-3	1.5
2-Chloroethyl vinyl ether	110-75-8	1.5
Chloroform	67-66-3	1.5
Chloromethane	74-87-3	1.5
Dibromochloromethane	124-48-1	1.5
1,1-Dichloroethane	75-34-3	1.5
1,2-Dichloroethane	107-06-2	1.5
1,1-Dichloroethene	75-35-4	1.5
Total-1,2-Dichloroethene	540-59-0	1.5
1,2-Dichloropropane	78-87-5	1.5
cis-1,3-Dichloropropene	10061-01-5	2
trans-1,3-Dichlopropropene	10061-02-6	1
Ethyl benzene	100-41-4	1.5
Methylene chloride *	75-09-2	1
1,1,2,2-Tetrachloroethane	79-34-5	1.5
Tetrachloroethene	127-18-4	1.5
Toluene *	108-88-3	1.5
1,1,1-Trichloroethane	71-55-6	1.5
1,1,2-Trichloroethane	79-00-5	1.5
Trichloroethene	79-01-6	1.5
Vinyl chloride	75-01-4	1.5
Acrolein	107-02-8	25
Acetone *	67-64-1	5
Acrylonitrile	107-13-1	25
Carbon disulfide	75-15-0	3
2-Butanone	78-93-3	5
Vinyl acetate	108-05-4	5
4-Methyl-2-pentanone	108-10-1	1.5
2-Hexanone	519-78-6	5
Styrene	100-42-5	1
Xylene (total)	1330-02-7	1.5

* Common laboratory solvents.
Blank limit is 5x method detection limit.
( ) Values in parentheses are estimates.
actual values are being determined at this time.

TABLE C (cont.)
SAS DRINKING WATER
SEMIVOLATILES QUANTITATION LIMITS

PARAMETER	CAS #	DETECTION LIMIT
Aniline	62-53-3	1.5 ug/l
Bis(2-chloroethyl)ether	111-44-4	1.5
Phenol	108-95-2	2
2-Chlorophenol	95-57-8	2
1,3-Dichlorobenzene	541-73-1	2
1,4-Dichlorobenzene	106-46-7	2
1,2-Dichlorobenzene	95-50-1	2.5
Benzyl alcohol	100-51-6	2
Bis(2-chloroisopropyl)ether	39638-32-9	2.5
2-Methylphenol	95-48-7	1
Hexachloroethane	67-72-1	2
n-Nitrosodipropylamine	621-64-7	1.5
Nitrobenzene	98-95-3	2.5
4-Methylphenol	106-44-5	1
Isophorone	78-59-1	2.5
2-Nitrophenol	88-75-5	2
2,4-Dimethylphenol	105-67-9	2
Bis(2-Chloroethoxy)methane	111-91-1	2.5
2,4-Dichlorophenol	120-83-2	2
1,2,4-Trichlorobenzene	120-82-1	2
Naphthalene	91-20-3	2
4-Chloroaniline	106-47-8	2
Hexachlorobutadiene	87-68-3	2.5
Benzoic Acid	65-85-0	20
2-Methylnapthalene	91-57-6	2
4-Chloro-3-methylphenol	59-50-7	1.5
Hexachlorocyclopentadiene	77-47-4	2
2,4,6-Trichlorophenol	88-06-2	1.5
2,4,5-Trichlorophenol	95-95-4	1.5
2-Chloronapthalene	91-58-7	1.5
Acenapthylhene	208-96-8	1.5
Dimethyl phthalate	131-11-3	1.5
2,6-Dinitrotoluene	606-20-2	1
Acenaphthene	83-32-9	1.5
3-Nitroaniline	99-09-2	2.5
Dibenzofuran	132-64-9	1
2,4-Dinitrophenol	51-28-5	(15)
2,4-Dinitrotoluene	121-14-2	1

TABLE C (Cont.)
SAS DRINKING WATER
SEMIVOLATILE QUANTITATION LIMITS

PARAMETER	CAS #	DETECTION LIMIT
Fluorene	86-73-7	1 ug/L
4-Nitrophenol	100-02-7	1.5
4-Chlorophenyl phenyl ether	7005-72-3	1
Diethyl phthalate	84-66-2	1
4,6-Dinitro-2-methylphenol	534-52-1	(15)
1,2-Diphenylhydrazine	122-66-7	1
n-Nitrosodiphenylamine *	86-30-6	
Diphenylamine *	122-39-4	1.5
4-Nitroaniline	100-01-6	3
4-Bromophenyl-phenylether	101-55-3	1.5
Hexachlorobenzene	118-74-1	1.5
Pentachlorophenol	87-86-5	2
Phenanthrene	85-01-8	1
Anthracene	120-12-7	2.5
di-n-Butyl phthalate	84-74-2	2
Fluoranthene	206-44-0	1.5
Pyrene	129-00-0	1.5
Butyl benzyl phthalate	85-68-7	3.5
Chrysene **	218-01-9	
Benzo(A)Anthracene **	56-55-3	1.5
bis(2-ethylhexyl)phthalate	117-81-7	1
di-n-Octyl phthalate	117-84-0	1.5
Benzo(b)fluoranthene ***	205-99-2	
Benzo(k)fluoranthene ***	207-08-9	1.5
Benzo(a)pyrene	50-32-8	2
Indeno(1,2,3-cd)pyrene	193-39-5	3.5
Dibenzo(a,h)anthracene	53-70-3	2.5
Benzo(g,h,i)perylene	191-24-2	4
2-Nitroaniline	88-74-4	1

* These two parameters are reported as a total.
** These two parameters are reported as a total.
*** These two parameters are reported as a total.

( ) Values in parentheses are estimates.
The actual values are being determined at this time.

Note: Limits are for reagent water.

TABLE C (Cont.)
SAS DRINKING WATER
PESTICIDE AND PCB QUANTITATION LIMITS

PARAMETER	CAS #	DETECTION LIMIT
Aldrin	309-00-2	0.005 ug/L
alpha BHC	319-84-6	0.010
beta BHC	319-85-7	0.005
delta BHC	319-86-8	0.005
gamma BHC (Lindane)	58-89-9	0.005
alpha-Chlordane	5103-71-9	0.020
gamma-Chlordane	5103-74-2	0.020
4,4'-DDD	72-54-8	0.020
4,4'-DDE	72-55-9	0.005
4,4'-DDT	50-29-3	0.020
Dieldrin	60-57-1	0.010
Endosulfan I	959-98-8	0.010
Endosulfan II	33213-65-9	0.010
Endosulfan sulfate	1031-07-8	0.10
Endrin	72-20-8	0.010
Endrin Aldehyde	7421-93-4	(0.030)
Endrin Ketone	53494-70-5	0.030
Heptachlor	76-44-8	0.030
Heptachlor Epoxide	1024-57-3	0.005
4,4'-Methoxychlor	72-43-5	0.020
Toxaphene	8001-35-2	0.25
Aroclor-1016	12674-11-2	0.10
Aroclor-1221	11104-28-2	0.10
Aroclor-1232	11141-16-5	0.10
Aroclor-1242	53469-21-9	0.10
Aroclor-1248	12672-29-6	0.10
Aroclor-1254	11097-69-1	0.10
Aroclor-1260	11096-82-5	0.10

( ) Values in parentheses are estimates.
Actual values are being determined at this time.

Note: Limits are for reagent water.

TABLE C (Cont.)
SAS DRINKING WATER
INORGANIC DETECTION LIMITS

PARAMETER	PROCEDURE	DETECTION LIMIT
Aluminum	ICP	100
Antimony	GFAA	5
Arsenic	GFAA	5
Barium	ICP	50
Beryllium	ICP	5
Cadmium	GFAA	0.5
Calcium	ICP	1000
Chromium	ICP	10
Cobalt	ICP	10
Copper	ICP	10
Iron	ICP	100
Lead	GFAA	2
Magnesium	ICP	1000
Manganese	ICP	10
Mercury	Cold Vapor	0.2
Nickel	ICP	20
Potassium	ICP	2000
Selenium	GFAA	2
Silver	ICP	5
Sodium	ICP	1000
Thallium	GFAA	2
Tin	ICP	40
Vanadium	ICP	10
Zinc	ICP	20
Cyanide	Colorimetric	10

Note: The above list may or may not contain compounds that are routinely analyzed at CRL for lov level detection limits for drinking water.

See inorganic Routine Analytical Services (RAS) for related CAS #.

ADDENDUM D

SPECIAL ANALYTICAL SERVICES
DETECTION LIMITS

High Concentration Samples

APPENDIX E

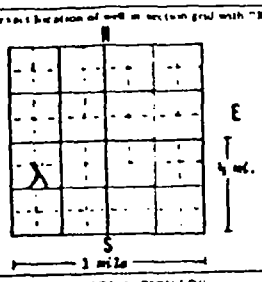
WELL LOGS OF THE AREA OF THE SITE

LOG 1

Township Name: - T | Township Number: 102 N | Range Number: 30 W | Section No.: 17 | Fraction: | Quarter: W

Distance and Direction from Road Intersections or Street Address and City of Well Location:

Show exact location of well in section grid with "X".



Sketch map of well location

Addition Name:

Block Number:

Lot Number:

Test hole 6

1" = 1723'

PROPERTY OWNER'S NAME: City

Address: Fairmont, Minnesota

WELL DEPTH (completed): ft. | Date of Completion:

1 ☐ Cable tool 4 ☐ Reverse 7 ☐ Driven 10 ☐ Dug
2 ☐ Hollow rod 5 ☐ Air 8 ☐ Bored 11 ☐
3 ☒ Rotary 6 ☐ Jetted 9 ☐ Power Auger

USE
1 ☐ Domestic 4 ☐ Public Supply 7 ☐ Industry
2 ☐ Irrigation 5 ☐ Municipal 8 ☐ Commercial
3 ☒ Test Well 6 ☐ Air Conditioning 9 ☐

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
RMMF Black dirt			0	2
RMMF Fill			2	9
QTUB Yellow clay			9	23
QTUG/ Blue clay			23	92
QTUU Sand			92	93
QTUG/ Blue clay			93	114
QTUG Blue sandy clay			114	123
QFUU Sand			123	125
QFUG Blue sand w/clay			125	130
QTUG Blue sandy clay			130	144
QFUG Blue sand w/clay			144	146
QTUG/ Blue sandy clay			146	170
KRET Fine sandstone w/clay		T/1023	170	209
Gumbo			209	210
Courser sandstone w/clay		T/983	210	244
Shale			244	257
Coal			265	
Courser sandstone		T/936	257	260
Sandstone w/red shale			260	268
Gumbo			268	278
Red shale		T/915	278	280
				T/913

102 ~~N~~ - 30 - 9 CB CCCC

elev 1193.07

(Log continued on second sheet, if necessary)

CASING
1 ☐ Black 4 ☐ Threaded
2 ☐ Galv 5 ☐ Welded
3 ☐ 6 ☐
Height: Above/Below Surface
Driven Shoe? Yes ___ No ___
2 in. to 230 ft. Weight ___ lbs./ft.
___ in. to ___ ft. Weight ___ lbs./ft.
___ in. to ___ ft. Weight ___ lbs./ft.
Hole Diam: ___ in. to ___ ft.

SCREEN
Make: Johnson
Type: Stainless Steel Dia.: 2
Slot/Gauge: 10 gauge Length:
Set between 230 ft. and 235 ft.
___ ft. and ___ ft.
___ ft. and ___ ft.
Or open hole from ___ ft. to ___ ft.
FITTINGS:

STATIC WATER LEVEL
16.19' ft. ☒ below land surface ☐ above Date Measured

PUMPING LEVEL (below land surface)
___ ft. after ___ hrs. pumping ___ g.p.m.
___ ft. after ___ hrs. pumping ___ g.p.m.

WELL HEAD COMPLETION
1 ☐ Pitless adapter 2 ☐ Basement offset 3 ☒ At least 12" above grade

Well grouted? ☐ Yes ☒ No Cu. Yds.
1 ☐ Neat Cement 2 ☐ Bentonite 3 ☐
Depth: from ___ ft. to ___ ft.
from ___ ft. to ___ ft.

Nearest sources of possible contamination
___ feet ___ direction IRW ___ type
Well disinfected upon completion? Yes ☐ No ☐

PUMP
Date Installed
☒ Not Installed
Manufacturer's Name
Model Number ___ HP ___ Volts
Length of drop pipe ___ ft. capacity ___ g.p.m.
Material of drop pipe
Type: 1 ☐ Submersible 3 ☐ L. S. Turbine 5 ☐ Reciprocating
2 ☐ Jet 4 ☐ Centrifugal 6 ☐

WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Thein Well Co., Inc. 12013
Licensee Business Name License No.
Address: Clara City, Minnesota
Signed ___ Date
Authorized Representative
Mark Kobe Date
Name of Driller

5/74 30M
7/76 30M

REMARKS, ELEVATION, SOURCE OF DATA, etc.

A-KRET 14-B

Aquifer KRET - KRET

1193 - 17 = 1176

MINN. GEOLOGICAL SURVEY COPY

Township Name: Fairmont | Township Number: 102 | Range Number: 29 W | Section No.: 17 | Fraction: SE ¼ of NW ¼

Distance and direction from Road Intersections or Street Address and City of Well Location

Show exact location of well on section grid with "X"

Sketch map of well location

W — E — S — 1 mile — T ½ mi.

Addition Name | Block Number | Lot Number

LOG 2

Address: City Fairmont, Mn

4 WELL DEPTH (completed): ft. | Date of Completion: GWQ 145

5. 1☐ Cable tool 2☐ Hollow rod 3☐ Air 4☒ Rotary 5☐ Reverse 6☐ Jetted 7☐ Driven 8☐ Bored 9☐ Power Auger 10☐ Dug 11☐

6 USE: 1☐ Domestic 2☐ Irrigation 3☐ Test Well 4☐ Public Supply 5☒ Municipal 6☐ Air Conditioning 7☐ Industry 8☐ Commercial 9☐

7. CASING: 1☒ Black 2☐ Galv 3☐ 4☐ 5☐ Threaded 6☒ Welded — HEIGHT: Above/Below Surface — Drive Shoe? Yes ☐ No ☒

12 in. to 190 ft. Weight 49.6 lbs./ft.

in. to ft. Weight lbs./ft.

in. to ft. Weight lbs./ft.

HOLE DIAM: in. to ft.; in. to ft.; in. to ft.

8. SCREEN: Make Johnson; Type Stainless Steel; Dia. 8; Slot/Gauge 50; Length; Set between 184 ft. and 296 ft.; ft. and ft.; ft. and ft.

Or open hole from ft. to ft.

FITTINGS

9 STATIC WATER LEVEL: 52 17/12 ft. ☒ below ☐ above land surface; Date Measured

10. PUMPING LEVEL (below land surface): 83 7/12 ft. after 24 hrs. pumping 870 g.p.m.; ft. after hrs. pumping g.p.m.

11. WELL HEAD COMPLETION: 1☐ Pitless adapter 2☐ Basement offset 3☒ At least 12" above grade

12. Well grouted? ☒ Yes ☐ No — Cu. Yds. 4 — 1☒ Neat Cement 2☐ Bentonite 3☐ — Depth: from ft. to ft.; from ft. to ft.

13. Nearest sources of possible contamination: feet, direction, type

Well disinfected upon completion? Yes☐ No☐

14 PUMP: Date Installed; Manufacturer's Name; Model Number; HP; Volts; Length of drop pipe ft.; Capacity g.p.m.; Material of drop pipe; Type: 1☐ Submersible 2☐ Turbine 3☐ Reciprocating 4☐ Centrifugal 5☐ Jet 6☐

2. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
RMMF Soil — Black dirt			0	1½
RMMF Fill — Fill			1½	13
QTU Clay — Yellow clay			13	18
QTUg Clay — Blue clay			18	52
QFU Sand — Sand			52	58
QTUg Clay — Blue clay			58	87
QTUg Clay, Sandy, cobl — Sandy blue clay			87	96
Rock			94	
QTUg Clay, Sand — Very sandy blue clay			96	107
QTUY Clay, Sand — Yellow clay sandy			107	131
QUUO Clay, Sand — Combo Sandy			131	155
KRET SNDS — Sandstone w/yellow clay		F/1.5	155	190
Sandstone SNDS		T/SEC	190	297
Shale SHLE		T/STB	297	305
Aquifer				FLAT
KRET - KRET				
FIELD CHECKED				
102-30-17-CDACBB				
ELV ~~1167'~~ 1169.61				
FAIRMONT, MN				

Use a second sheet, if needed.

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Thein Well Co., Inc. 12013
Licensee Business Name — License No.

Address: Clara City, Minnesota

Signed: Authorized Representative — Date

Mark Kobe — Date
Name of Driller

MINN. GEOLOGICAL SURVEY COPY

5/74 30M
7/76 30M

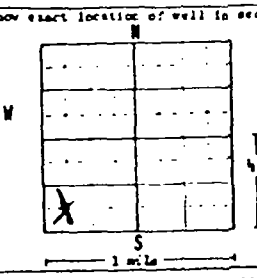
LOG 3

1. LOCATION OF WELL

County Name	Fraction	Section Number	Township Number	Range Number
Martin		17	102 N. or S.	30 W. E. or W.

Distance and Direction from Road Intersections or Street Address and City of Well Location

Show exact location of well in section grid with "X". Sketch map of well location.



Testhole 2

3. PROPERTY OWNER'S NAME

Address City Fairmont, Minnesota

4. WELL DEPTH (completed) ft. | Date of Completion

5. [1] Cable tool [4] Reverse [7] Driven [10] Dug
[2] Hollow rod [5] Air [8] Bored [11] ____
[3] X Rotary [6] Jetted [9] Power Auger

6. USE
[1] Domestic [4] Public Supply [7] Industry
[2] Irrigation [5] Air Conditioning [8] Commercial
[3] X Test Well [6] ____

7. CASING DIAM. | Threaded [1] | Welded [3] | Black [2] | Galv. [4]
2 in. to 140 ft. depth
in. to ft. depth
in. to ft. depth
HEIGHT: Above/Below Surface ____ ft.
Weight ____ lbs./ft.
Drive Shoe? Yes ___ No ___

8. SCREEN Make Johnson | Or open hole from ____ ft. to ____ ft.
Type Stainless Steel Dia. ____
Slot/Cause ____ Length ____
FITTINGS:
Set between 140 ft. and 145 ft.
____ ft. and ____ ft.
____ ft. and ____ ft.

9. STATIC WATER LEVEL
20'2" ft. X below [ ] above land surface Date Measured ____

10. PUMPING LEVEL (below land surface)
____ ft. after ____ hrs. pumping ____ g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

11. WELL HEAD COMPLETION
[1] Pitless adapter [2] Basement offset [X] At least 12" above grade

12. Well grouted? [ ] Yes [X] No Cu. Yds. ____
[1] Neat cement [2] Bentonite [3] ____
Depth: from ____ ft. to ____ ft.
from ____ ft. to ____ ft.

13. Nearest source of possible contamination
____ feet ____ direction ____ type
Well disinfected upon completion? Yes [ ] No [ ]

14. PUMP
Date installed ____
[X] Not installed
Manufacturer's Name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft. capacity ____ g.p.m.
Material of drop pipe ____
Type: [1] Submersible [3] L.S. Turbine [5] Reciprocating
[2] Jet [4] Centrifugal [6] ____

FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
QTu1 Black dirt			0	1
QTu1 Yellow sandy clay			1	5
QFu? Dirty sand			5	8
QTu Yellow sandy clay			8	10
QTu? Grey sandy shale			10	17
QTu Yellow sandy clay			17	31
QTu Brown shale			31	32
QTu Yellow sandy clay			32	33
Q-Lu Sandy gumbo			33	34
QTu? Blue shale			34	36
QTu? Blue sand, clay coal, wood			36	44
QTu? Blue sandy clay			44	51
QTu? Blue clay			51	95
QFu? Blue sand, clay			95	97
QTu? Blue sand with clay			97	104
QTu? Blue sandy clay			104	118
K?? Fine sand stone shaley	hard	T1039	118	151
Softer			151	155
102-30-17 CBCCBD				
elev. 1157.35				
14-B				

Use a second sheet, if needed.

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Thein Well Co., Inc. 12013
Licensee Business Name License No.

Address Clara City, Minnesota

Signed ____ Date ____
Authorized Representative

Mark Kobe
Name of Driller

7/74 30M

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

A - WO Aquifer KRET-KRET

Depth to bedrock 118

Bedrock KRET

MINN. GEOLOGICAL SURVEY COPY

LOG 4

Township Number 1 | Range Number 1 | Section No. 102 | 30 | 4

Distance and Direction from Road Intersection or Street Address and City of Well Location

Testhole No. 7

Address City Fairmont, Minnesota

Show exact location of well in section grid with "X"

Sketch map of well location

N / W / E / S — 1 mile — ½ mi.

Addition Name

Block Number

Lot Number

1724

TEST HOLE AT POWER PLANT

elev 1199.88

4 WELL DEPTH (completed) ft. | Date of Completion

1 ☐ Cable tool 4 ☐ Reverse 7 ☐ Driven 10 ☐ Dug
2 ☐ Hydraulic rod 5 ☐ Air 8 ☐ Bored 11 ☐
3 ☒ Rotary 6 ☐ Jetted 9 ☐ Power Auger

6. USE
1 ☐ Domestic 4 ☐ Public Supply 7 ☐ Industry
2 ☐ Irrigation 5 ☐ Municipal 8 ☐ Commercial
3 ☒ Test Well 6 ☐ Air Conditioning 9 ☐

7. CASING — HEIGHT: Above/Below
1 ☐ Black 4 ☐ Threaded
2 ☐ Galv 5 ☐ Welded
3 ☐ 6 ☐
Surface ____ ft.
Drive Shoe? Yes ____ No ____
2 in. to 248 ft. Weight ____ lbs./ft.
____ in. to ____ ft. Weight ____ lbs./ft.
____ in. to ____ ft. Weight ____ lbs./ft.

HOLE DIAM
____ in. to ____ ft.
____ in. to ____ ft.
____ in. to ____ ft.

8. SCREEN
Make ____
Or open hole from ____ ft. to ____ ft.
Type Stainless Steel Dia. ____
Slot/Gauge 10 Length ____
Set between 245 ft. and 253 ft.
____ ft. and ____ ft.
____ ft. and ____ ft.
T/1020
FITTINGS

9. STATIC WATER LEVEL
8714 ft. ☒ below land surface ☐ above Date Measured ____

10. PUMPING LEVEL (below land surface)
____ ft. after ____ hrs. pumping ____ g.p.m.
____ ft. after ____ hrs. pumping ____ g.p.m.

11. WELL HEAD COMPLETION
1 ☐ Pitless adapter 2 ☐ Basement offset 3 ☒ At least 12" above grade

12. Well grouted?
☐ Yes ☒ No Cu. Yds. ____
1 ☐ Neat Cement 2 ☐ Bentonite 3 ☐ ____
Depth: from ____ ft. to ____ ft.
from ____ ft. to ____ ft.

13. Nearest sources of possible contamination
____ feet ____ direction ____ type
Well disinfected upon completion? Yes ☐ No ☐

14. PUMP
T/942
Date Installed ____
☒ Not Installed
T/935
Manufacturer's Name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft. capacity ____ g.p.m.
Material of drop pipe ____
Type: 1 ☐ Submersible 3 ☐ L.S. Turbine 5 ☐ Reciprocating
2 ☐ Jet 4 ☐ Centrifugal 6 ☐ ____

2. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Black dirt			0	4
Yellow clay			4	36
Blue clay			36	116
Rock			54	
Blue sandy clay			116	144
Sandy gumbo			144	180
Sandstone & gumbo			180	190
Sandstone very dirty			190	205
Cleaned up some			205	220
Cleaned up more			220	225
Cleaner coarser			225	240
Very clean			240	257
Coal			257	
Blue clay			257	258
Clean sandstone			258	265
Red shale			265	300
102-30-8 BBABBD				6/1900
elev. 1199.88				
14-B				
A-12 RCT				

Use a second sheet, if needed.

15. REMARKS, ELEVATION, SOURCE OF DATA, etc.

A garden
KRET - KRET

1200 - 84 1113

16. WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Thein Well Co., Inc. 12013
Licensee Business Name — Licensee No.

Address Clara City, Minnesota

Signed ____ Date ____
Authorized Representative

Mark Kobe Date ____
Name of Driller

MINN. GEOLOGICAL SURVEY COPY

5/74 30M
7/76 30M

LOG 5

County Name: Martin | Fraction: | Section Number: 17 | Township Number: 102 N | Range Number: 30 W

Distance and Direction from Road Intersection or Street Address and City of Well Location

Show exact location of well in section grid with "X". Sketch map of well location.

Testhole 1-C

3. PROPERTY OWNER'S NAME
Address: City, Fairmont, Minnesota

4. WELL DEPTH (completed) ft. | Date of Completion

5. ☐ Cable tool ☐ Reverse ☐ Driven ☐ Dug ☐ Hollow rod ☐ Air ☐ Bored ☒ Rotary ☐ Jetted ☐ Power Auger

6. USE ☐ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☒ Test Well

7. CASING DIAM. Threaded ☐ Welded ☐ Black ☐ Galv. ☐
2 in. to 231 ft. depth
HEIGHT: Above/Below Surface ___ ft. Weight ___ lbs./ft. Drive Shoe? Yes ___ No ___

8. SCREEN Make: Johnson Type: Stainless Steel Slot/Gauze: 10 gauze Set between 231 ft. and 236 ft.
Or open hole from ___ ft. to ___ ft.

9. STATIC WATER LEVEL 50'2" ft. ☒ below ☐ above land surface. Date Measured

10. PUMPING LEVEL (below land surface) ___ ft. after ___ hrs. pumping ___ g.p.m.

11. WELL HEAD COMPLETION ☐ Pitless adapter ☐ Basement offset ☒ At least 12" above grade

12. Well grouted? ☐ Yes ☒ No

13. Nearest source of possible contamination ___ feet ___ direction ___ type. Well disinfected upon completion? Yes ☐ No ☐

14. PUMP Date installed ☒ Not installed

2\. FORMATION LOG

Formation	Color	Hardness of Formation	From	To
FHUF Yellow clay			0	3
FUUU Top soil			3	5
QTUY Yellow clay			5	20
QTUY Blue clay			20	56
QTUY Blue sandy clay			56	68
QTUY Blue clay			68	70
QTUY Blue sandy clay			70	113
QFUY Blue sand w/clay			113	119
QTUY Blue sandy clay			119	130
QTU Red sandy caly			130	133
KRET Red clay	T/1033		133	171
Soft fine red sand	T/995		171	217
Red shale	T/949		217	219
Sand	T/947		219	273
Red shale	T/893		273	280

102-30-17 CDB C UD BREC
elev. 1166.03
14-B
A - no Aquifer

15\. REMARKS, ELEVATION, SOURCE OF DATA, etc.
Aquifer KRET-KRET

16\. WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Thein Well Co., Inc. 12013
Licensed Business Name / License No.
Address: Clara City, Minnesota
Signed ___ Date ___
Authorized Representative
Mark Kobe
Name of Driller

MINN. GEOLOGICAL SURVEY COPY

7/74 30M

DEPARTMENT OF HEALTH

Minnesota Statutes 156A.01-.08

LOG 6

1. LOCATION OF WELL

County Name	Fraction	Section Number	Township Number	Range Number
Martin	W ½ NW ¼	17	102 N. or S.	30 W. or E.

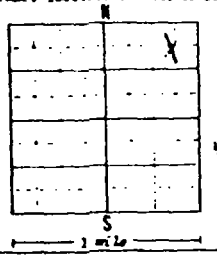
Distance and Direction from Road Intersections or Street Address and City of Well Location

3. PROPERTY OWNER'S NAME

Address **City**
Fairmont, Minnesota

Exact location of well in section grid with "X." Sketch map of well location.

Test hole 1-B



4. WELL DEPTH (completed) ft. | Date of Completion

5. 1 ☐ Cable tool 4 ☐ Reverse 7 ☐ Driven 10 ☐ Dug
2 ☐ Hollow rod 5 ☐ Air 8 ☐ Bored 11 ☐
☒ Rotary 6 ☐ Jetted 9 ☐ Power Auger

6. USE
1 ☐ Domestic 4 ☐ Public Supply 7 ☐ Industry
2 ☐ Irrigation 5 ☐ Air Conditioning 8 ☐ Commercial
☒ Test Well 6 ☐

7. CASING DIAM. Threaded ☐ 1 Welded ☐ 3 Black ☐ 2 Galv. ☐ 4
2 in. to 100 ft. depth
in. to ft. depth
in. to ft. depth

HEIGHT: Above/Below
Surface ft.
Weight lbs./ft.
Drive Shoe? Yes No

8. SCREEN
Make Johnson
Type Stainless Steel Dia. 2
Slot/Gauge Length
Set between 100 ft. and 105 ft.
ft. and ft.
ft. and ft.
Or open hole from ft. to ft.
FITTINGS:

9. STATIC WATER LEVEL
56.7' ft. ☐ below land surface ☐ above Date Measured

10. PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.
ft. after hrs. pumping g.p.m.

11. WELL HEAD COMPLETION
1 ☐ Pitless adapter 2 ☐ Basement offset 3 ☐ At least 12" above grade

12. Well grouted? ☐ Yes ☒ No Cu. Yds.
1 ☐ Neat cement 2 ☐ Bentonite 3 ☐
Depth: from ft. to ft.
from ft. to ft.

13. Nearest source of possible contamination
feet direction type
Well disinfected upon completion? Yes ☐ No ☐

14. PUMP
Date Installed
☒ Not Installed
Manufacturer's Name
Model Number HP Volts
Length of drop pipe ft. capacity g.p.m.
Material of drop pipe
Type: 1 ☐ Submersible 3 ☐ L.S. Turbine 5 ☐ Reciprocating
2 ☐ Jet 4 ☐ Centrifugal 6 ☐

16. WATER WELL CONTRACTOR'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Thein Well Co., Inc. 12013
Licensee Business Name License No.
Address Clara City, Minnesota
Signed Date
Authorized Representative
Mark Kobe
Name of Driller

2. FORMATION LOG	COLOR	HARDNESS OF FORMATION	FROM	TO
Black dirt			0	2
Yellow clay			2	13
Blue clay			13	57
Blue sandy clay			57	97
Sand			97	117
Sandy shale			117	140
Rock			90	

A - QBAA

102
~~32~~-30-17 AAC BAB
elev. 1169.37
14-B

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

Aquifer
Quar-Sand

MINN. GEOLOGICAL SURVEY COPY

WRD Exp. (GW)
April 1966

227038 Well No. 102·30·8 DCD (BPC)

LOG 7

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD

Record by [illegible] Source of data Misc. WSP 256 Date 12-4-[illegible] Map Fairmont + Vicinity

State Minn. County (or town) Martin

Latitude: 43 38 45 N (deg, min, sec) Longitude: 094 27 10 (degrees, min, sec) Sequential number:

Lat-long accuracy: 2 T. N S, R W, Sec , , , 85 B & M

Local well number: 102N30W08DCD Other number:

Local use: Owner or name: Fairmont H.S.

Owner or name: FAIRMONT Address: High School

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist — M

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, (I) Irr, (M) Ind, (N) P S, (P) Rec, (S) Stock, (T) Instit, (U) Unused, (V) Repressure, (W) Recharge, (X) Desal-P S, (Y) Desal-other, (Z) Other

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Res, (O) Obs, (P) Oil-gas, (R) Recharge, (T) Test, (U) Unused, (W) Withdrawn, (X) Waste, (Z) Destroyed

DATA AVAILABLE: Well data Freq. W/L meas.: Field aquifer char.

Hyd. lab. data: 102-30-8ACBCD

Qual. water data; type: elev 1196±5'

Freq. sampling: 148 Pumpage inventory: no. period:

Aperture cards: yes

Log data: D

LOCATED BY
1 - ☐ Address Verification
2 - ☐ Name on Mailbox
3 - ☐ Lot-Block
4 - ☐ Plat Book
5 - ☐ Info. From Owner
6 - ☒ Info. From Neighbor
7 - ☐ Other
☐ Can't Locate State Why

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: ft 113 Meas. rept Drillers log accuracy 3

Depth cased: (first perf.) ft Casing type: ; Diam. in

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (Φ) open end, (P) perf., screen, sd. pt., (S) shored, (T) open hole, (Z) other

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other

Date Drilled: Pre-1911 Pump intake setting: ft

Driller: name , address

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple, (cent.), (M) multiple, (turb.), (N) none, (P) piston, (R) rot, (S) submerg, (T) turb, (Z) other Deep Shallow

Power (type): diesel, elec, gas, gasoline, hand, nat gas, LP gas, wind; H.P. Trans. or meter no.

Descrip. MP ft above below LSD. Alt. MP

Alt. LSD: 1190 1190 Accuracy: (source) 4

Water Level ft above below MP; Ft above below LSD Accuracy:

Date meas: Yield: gpm Method determined

Drawdown: ft Accuracy: Pumping period hrs

QUALITY OF WATER DATA: Iron ppm Sulfate ppm Chloride ppm Hard. ppm

Sp. Conduct K x 10^6 Temp. °F Date sampled

Taste, color, etc.

Well No. 102-30-8DCD

KLSO

4-QBAL

Well No. _____

Latitude-longitude N S d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (1–19) Physiographic Province: _____ (20–21) Section: _____

_____ (22) Drainage Basin: _____ (23–25) Subbasin: _____ (26)

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, (K) sink, (L) swamp, (Φ) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat _____ (27)

MAJOR AQUIFER: Quat. (system), Pleist (series), Q G (28–29) _____ aquifer, formation, group (30–31)

Lithology: Gr. _____ (32–33) Origin: _____ (34) Aquifer Thickness: _____ ft

(35–37) Length of well open to: _____ ft (38–40) Depth to top of: _____ ft (41–43)

MINOR AQUIFER: _____ system, _____ series (44–45) _____ aquifer, formation, group (46–47)

Lithology: _____ (48–49) Origin: _____ (50) Aquifer Thickness: _____ ft

(51–53) Length of well open to: _____ ft (54–56) Depth to top of: _____ ft (57–59)

Intervals Screened: _____

Depth to consolidated rock: _____ ft (60–63) Source of data: _____ (64)

Depth to basement: _____ ft (65–68) Source of data: _____ (69)

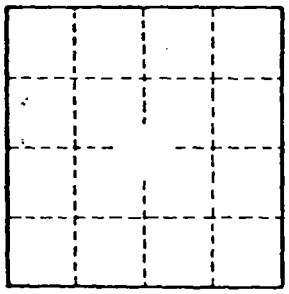
Surficial material: _____ (70–71) Infiltration characteristics: _____ (72)

Coefficient Trans: _____ gpd/ft (73–75) Coefficient Storage: _____ (76–78)

Coefficient Perm: _____ gpd/ft^2; Spec cap: _____ gpm/ft; Number of geologic cards: _____ (79)

	Thick	Depth	
Soil	3	3	1170
Clay, yellow	20	23	
Clay, blue	87	110	
Gravel	3	113	1060

Aq: QPlA - QPl-A



Well No. 102.30.8 DCD

GPO 857-700

recycled paper

ecology and environment